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PRESENT PHILOSOPHICAL TENDENCIES

A CRITICAL SURVEY OF NATURALISM,
IDEALISM, PRAGMATISM, AND REALISM
TOGETHER WITH A SYNOPSIS OF THE
PHILOSOPHY OF WILLIAM JAMES.

BY

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DEDICATED TO THE DEAR AND REVERED
MEMORY OF
WILLIAM JAMES

P R E F A C E

To avoid any misunderstanding as to the scope of the present book, let me say at the outset that with the exception of the Appendix, it is a critique, rather than a history. I have attempted not merely to summarize, but to estimate, present philosophical tendencies; and my criticism is throughout based on the realistic philosophy which I set forth constructively only at the end.

Since my method has been critical rather than expository I shall doubtless be charged with having committed the *error personae*, with having attributed to certain writers views which they would not recognize as their own. Be this as it may, I have in any case formulated the views which I have criticised, so that *the merits of the question* may always be in the foreground of study. I have assumed it to be more important to discover whether certain current views were true or false than to discuss with painstaking nicety the question of their attribution.

Furthermore, I realize that I have given to the several tendencies which I have discussed the relative emphasis which is characteristic of Anglo-American thought. This appears in the importance which I have attached to the blend of "critical" or Kantian, with metaphysical or Hegelian motives in idealism; in my identification of realism with the "new" or non-dualistic realism; and in the prominence which I have given both to realism and to pragmatism. The difference in respect of distribution and

VIII PRESENT PHILOSOPHICAL TENDENCIES

emphasis between an Anglo-American and a Continental survey of contemporary philosophy may be observed from a comparison of the present volume with Ludwig Stein's excellent book, *Die Philosophische Strömungen der Gegenwart*.

Portions of the present book are reprinted from periodicals, and I have made due acknowledgment in the proper places. I desire also gratefully to acknowledge the help of my friends Professor E. B. Holt, Professor E. G. Spaulding, Dr. M. P. Mason, Dr. H. M. Sheffer, and Dr. Gunther Jacoby.

RALPH BARTON PERRY.

CAMBRIDGE, September, 1911.

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PART I
INTRODUCTION

PRESSENT ' PHILOSOPHICAL TENDENCIES

CHAPTER I

*PHILOSOPHICAL THEORY AND ESTABLISHED BELIEF*¹

§ 1. It is impossible to undertake a summary of philosophical tendencies without being sensible of the breach
Discrepancy between Theory and Belief | between the philosophy of the schools and the philosophy of the streets, between the latest speculations, hypotheses, and definitions of critical experts, and the general beliefs of mankind. This discrepancy is not peculiar to philosophy. There is a similar difference between pure science and popular science, between political theory and political faith or tradition. But in neither case is the difference so confusing or disturbing as in the case of philosophy. Confusion between pure and popular science is avoided by the development of an organized technique, which makes pure science largely unintelligible to the layman; and there is little danger of a premature application of scientific hypotheses, because of the material difficulties which must be overcome before any such hypothesis can be applied. The same holds, although much less certainly, of politics. Political action is based on the steady and widespread acceptance, within a community, of certain general beliefs that are not immediately affected by the fluctuations of theory. And here also the application of theory must, except under extraordinary condi-

¹ Reprinted, with additions and alterations, from an article entitled "Theories and Beliefs," *Harvard Theological Review*, Vol. III, July, 1910.

tions, move at a slow pace because of the complexity of the instrumentalities employed.

It may be argued that the common philosophical beliefs are similarly protected and rendered stable by their wide interpenetration with social interests, and by the authority of established religion. But the fact remains that a philosophical revolution is more easily accomplished than a political revolution. The reason for this lies in the fact that a philosophy, unlike a polity, is an individual matter. A man may reconstruct his *Weltanschauung*—establish his world of thought upon a new foundation, and rearrange his order of values—without encountering any greater resistance than the inertia of his own habits. And such a revolution is the more easily accomplished in an individualistic era like the present, in which the church has relaxed its hold upon the minds of men. If, then, there be any practical risk in the exposure of belief to the variability of theory, that risk will be peculiarly great in the case of philosophy. And there is also a peculiar liability to confusion here, because theoretical philosophy has never as yet succeeded in developing a technique of its own. The terms of philosophical research and speculation are largely the terms of religious belief, so that the layman too readily identifies the tentative hypotheses of the investigator with the venerable symbols of his faith.

§ 2. Both theory and belief, the new word of critical speculation, and the old assumptions of life, are forms of knowledge. And although it is necessary that these forms should be distinguished and even separately organized, that necessity should not blind us to the fact that their value is fundamentally the same. (That the control of nature through the advancement of knowledge is the instrument of progress and the chief ground of hope, is the axiom of modern civilization. This is more peculiarly a modern idea than is commonly supposed. The ancient world had its dogmatic and its critical idea of progress. The

Theory and
Belief as Forms
of Knowledge,
Having the
Same Funda-
mental Value

former was the idea of national or racial aggrandizement by the conquest of territory and the usurpation of political control. The latter, contributed by the genius of Greece, was the humanistic idea of the intensive cultivation and refinement of human nature. These ancient ideas were superseded by Christian supernaturalism, which referred man's hope of salvation to another world which might be won by the repudiation of this. As Christian Europe became secularized, there developed the theocratic idea of a fixed system in which all human activities should be limited and controlled by religious authority. Finally, as a reaction against the established order, there appeared the idea of the Renaissance—an enthusiasm for antiquity, and a desire to reverse the course of history.

The modern idea, though it borrows something from all of these ideas, is fundamentally different. It bespeaks a solidarity of mankind in the enterprise of life, and in this manifests its Christianity, and it derives from paganism a respect for human capacities, and a confidence in man's power to win the good for himself. But these motives are so united in the modern spirit as to produce something genuinely new. The good is to be won by the race and for the race, it lies in the future, and can result only from prolonged and collective endeavor, and the power to achieve it lies in the progressive knowledge and control of nature. This is the Baconian idea. The incentive to knowledge lies in its application to life. "For fruits and inventions are, as it were, sponsors and sureties for the truth of philosophies." Therefore, Bacon would have men of learning begin and end their study with the facts of their present environment. "For our road does not lie on a level, but ascends and descends, first ascending to axioms, then descending to works." In the last part of the *New Atlantis* there is a remarkable description of the riches of Solomon's House, the great museum and laboratory, the treasure house and workshop, which was "the lantern of this kingdom." The words with which the father of

Solomon's House receives his visitors are a terse and eloquent summary of that which Francis Bacon prophesied, and which posterity has steadily achieved. "The end of our foundation is the knowledge of causes, and secret motions of things, and the enlarging of the bounds of human empire, to the effecting of all things possible" ¹

The value of theory and belief is in the end the same. Both are forms of knowledge, and knowledge furnishes the illumination and guidance of all conscious action. But, as we shall now see, each of these forms of knowledge has also a *specific* value, through which this more fundamental value is realized; and these more specific values require not only a difference of procedure, but even a certain incommensurability of terms

§ 3 In an essay entitled "The Scepticism of Believers," Leslie Stephen remarks a common confusion between unbelief and contrary belief. The term 'belief' is at any historical moment almost invariably used to denote the established belief, that is, the belief supported by authority or by the consensus of opinion, while the term 'unbelief' is used to denote dissent from the established belief, even when, as is most often the case, this dissent is itself due to belief. The established belief resists change, and must be attacked, weakened, or destroyed, before it is possible for another belief to get a hearing; hence assenters come to regard dissenters as destructive in their primary intent, and are blinded to the fact that there is *another belief at stake*, which may be as affirmative and constructive in its own terms as that which at the time prevails. Thus modern religious orthodoxy has condemned as unbelief a certain secular tendency which really has arisen, not from a love of mischief-making, but from a most

¹ Bacon *Philosophical Works*, Edited by Ellis and Spedding, Vol III, p. 156, cf *ibid*, Vol IV, pp 73, 96. This reference to Bacon is in part reprinted from an article entitled "The Prophecy of Francis Bacon," *Popular Science Monthly*, Vol LXXVII, May, 1910

devoted confidence in the uniformity of nature, and in the power of man to save himself. It is not wholly unjust to assert, as Leslie Stephen does assert, that, in opposing the free advance of science and of individualism, defenders of "the Faith" have virtually sought to prevent or destroy that faith in the enterprise of civilization which has mainly inspired the progress of the last two centuries.)

But for our present purposes the significance of this lies not in the issue between warring beliefs, both of which are positive and confident, but in the issue between belief, which puts heart into men, and that state of suspended animation, of hesitation, and general impotence, which is properly to be regarded as unbelief. "The man has most faith, in the sense in which faith represents a real force," says our author, "whose convictions are such as are most favorable to energetic action, and is freest from the doubts which paralyze the will in the great moments of life. He must have a clear vision of an end to be achieved, devotion to which may be the ruling passion of his life and the focus to which all his energies may converge."¹ In the present discussion, I use the phrase 'established belief' to denote faith, in this sense of conviction favorable to action; and it is my purpose to show that the opposite state of mind, unbelief, or the lack of convictions favorable to action, may be induced by *theory*. Before theory can become belief it must be assimilated to a plan of life; it must be not only asserted, but also adopted. And when belief becomes theory, it means that an integral component of some man's plan of life is withdrawn, making it necessary that his hand should be stayed, and the plan suspended, if not permanently abandoned. Without a recognition of this radical difference between theory and belief, unless it be understood that as moods, states of mind, or moments of life, they are almost antithetical, one must remain blind to the real tragedy of heresy and doubt.

The virtue of belief lies in the application. Knowledge

¹ Leslie Stephen, *An Agnostic's Apology*, p. 50.

does not become belief until it is presupposed for the purposes of action. This holds equally of the most elementary common sense, of technical skill, and of religious piety. Common sense consists of the manifold things that can be taken for granted for the purposes of everyday life. Common sense must be true to be useful; but it would still not be useful unless it were habitually and implicitly trusted. Technical skill is derived from science; but until scientific principles are sufficiently well established to be relied on, they cannot be applied. And piety, if it be not constant, if a life be not founded on it, is not that good thing which is called religion. He who makes plans for the morrow, or constructs a bridge, or prays to God, believes. There is, then, a specific value in belief, over and above the value of truth which it must have in common with knowledge. This value is that confidence and steadiness, without which no consecutive endeavor is possible. And since this is the case, it follows that there is a legitimate and powerful incentive to belief, which may be distinguished from the love of truth. So that they are not wholly unreasonable who resent being robbed of their belief, or, seeking to have it restored, pray God to help their unbelief.

Now it is clear that theory can no more take the place of belief than a stone can take the place of bread. Theory does not directly nourish and sustain life, as belief does; because, unlike belief, it does not suit the humor of action. To theorize is to doubt. The investigator must be both incredulous and credulous, believing nothing, and prepared to believe anything. While he remains theoretically minded, he remains open-minded, receptive to evidence, committing himself to assertions only tentatively or provisionally. He may be preparing foundations, but he cannot let them stand, and hence is not free to build on them. Furthermore, for the very reason that the theorist is not expected to put his theories into practice, he enjoys a certain irresponsibility. To him is allotted the task of examining a question on its merits, without reference to

ulterior motives. He is permitted a certain play of conjecture, a certain oscillation of mind between hypothetical alternatives, that is fatal to administrative competence. Nor is the theoretical mind held to those standards of proportionateness which obtain in life. The scientist is not infrequently likened to James's "myopic ant," who tumbles into every microscopic crack and fissure, and never suspects that a centre exists. But fatal as such procedure would be to the proper conduct of life, it is neither unworthy nor unfruitful as an incident of theoretical analysis. Chesterton has remarked that "a man does not go mad because he builds a statue a mile high, but he may go mad by thinking it out in square inches"¹ In the latter case, judged by the standards of social efficiency, the man is mad, but his madness is explained, or adjudged not madness after all, when it is recognized that his interest is theoretical. And a similar allowance is made for a certain difference of pace in life and in theory. There is a maxim to the effect that "he that will believe only what he can fully comprehend, must have a very long head or a very short creed" In other words, when theoretically-minded, one proceeds as though life permitted of being invariably guided by good and manifest reasons, whereas practically, if one were to adopt such a principle, one would never reach the first milestone. Intelligent living proceeds not by doubting, examining, experimenting, and proving, but by assuming. There is an urgency and brevity about life that makes it impossible that one should give the rein to one's critical powers or weigh every affirmation in the delicate balance of logic.

I hope it is clear that I am not attempting to divide men into believers and theorists. I am distinguishing not between classes of men, but between characteristic moods or states of mind. The difference, however, is not so much psychological as it is moral. There is a different motive in theory and in belief, a different human good. Hence it

¹ G. K. Chesterton, *Orthodoxy*, p. 67

follows that these moods may confront one another dramatically both in individual life and in the history of society. There is a party of theory and a party of belief, with a loyalty to each. It may be that in our own time, for example, there is more need of emphasizing the motive of belief. We live in a rationalistic age, many of us in a rationalistic fellowship or community, and incline to the party of theory. It is the mark of such partisanship to suppose that advocates of established belief are moved to suspect or resist innovation only by stubbornness or inertia. On the contrary, conservatism is not less passionate than radicalism, nor less moved by the love of good. For the advocate of established belief is the advocate of established life; of that present adjustment of interests which is daily tested and proved, and to which the great majority of men are wholly and irrevocably committed. It is less enlightened to despise him as the enemy of truth than to pay him some respect as the friend of peace and order.

§ 4. We shall not understand the strength of the motive of belief, or the part which it plays in the vital economy, until we recognize its corporate character. An established belief possesses a value proportional to the number of interest invested in it. And this solidarity of belief manifests itself on every scale, individual, social, and historical. It has been said that every man of action is a fatalist. This is due to the need of a permanence of belief, if the several acts of an individual life are to contribute to one end. (A plan of action, in proportion to its scope, requires time and manifold agencies for its execution, and must be adhered to from moment to moment and from act to act. Every plan of action is based on innumerable assumptions concerning the natural and social environment; and if these assumptions be questioned, the plan is virtually suspended.) Action is efficient in proportion to its range, and the greater its range the more necessary is it that its components should be rigid and stable. Assumptions must be trusted implicitly in order that one may be

The Solidarity
of Belief

free to leave them behind one's back and face the work to be done.

The larger the enterprise, the greater the need of a fixed orientation, of a view that shall not dissolve until a thousand tributary agencies have been assembled, coordinated, and made jointly and cumulatively to achieve the designated end. It follows that a steadiness of belief is more indispensable to social than to individual action. Every variety of cooperation requires that men shall occupy common ground. The best partners, like the best friends, are those who can take the most for granted. That which is true of every lesser social enterprise is supremely true of politics and religion. The arm of society is the institution, and this owes its power to a wide-spread community of belief. The institution is the most delicate and complicated mechanism of life, constructed out of the purposes and convictions of innumerable individuals. And this mechanism cannot remain intact, and be the instrument that it is designed to be, unless the parts be firm and durable. In short, society could not act, for the maintenance of order or the promotion of civilization, if men's ideas were fluent and transitory. This does not mean merely that social action would be hampered, but that any political or organized community whatsoever would be impossible. Unbelief is equally fatal to the full benefit of religion. That benefit is realized only when a firm conviction concerning the ultimate source of human fortune, or the supreme object of devotion, dominates and unifies all the varied activities of life. This benefit is never fully attained; but so far as it has been attained, it has given to civilization something of the sweetness and vigor of health. When science and art, common sense and mystical ecstasy, the outer manner and the inner propensity, in all men different and yet in all alike, do but embroider and enact one theme, the circle is closed and the strength of man made perfect. And such unanimity of imagination and enthusiasm, quickening and ennobling the concert of action, must rest on unseen but deep-laid foundations of common belief.

There remains one further proof of the solidarity of belief. If society is to act effectively, it must remain in agreement with itself not only breadthwise but also lengthwise. The temporal continuity of civilization is the indispensable condition of progress. When fundamental convictions are altered, it is much like moving to a new planet, the work must be begun all over again. Apparently the conquests of civilization are gained by swift and sudden victories. But revolution is only the beginning of reformation. It is the slow process of reorganization and education that saves the fruits of such victories, and constitutes that steady if almost imperceptible advance on which the hope of civilization must mainly rely. In order that this shall be possible, it is necessary that beliefs should be transmitted together with problems and opportunities. Unless the burden is to fall, the young must not only grasp what the old have let go, but they must obtain the same foothold.

There are, then, *systems of belief* which condition effective, concerted, and progressive living. Such systems, it may be further remarked, have their more and their less vital parts. There are some beliefs which, like the keystone of the arch or the base of the pyramid, cannot be dislodged without overthrowing the whole structure. If there be a good in all belief, that good will be greater in such beliefs; and if there be a motive which rallies men to the support of any belief, men will be moved most passionately when such beliefs are at stake. For these are the beliefs most built upon, to which men are most committed, and in which they have invested all their possessions. When they are shaken, it is like the trembling of the solid earth.

§ 5. Unless, in spite of all prepossessions to the contrary, in spite of a justifiable impatience with every obstacle to Galileo and the Inquisition progress, we can see a certain rightness and sound loyalty in conservatism, we shall remain blind to the meaning of the great transitional eras. Thus we are swift to condemn the Inquisition of the seventeenth century, and the compromises of Galileo and Descartes.

The catholic orthodoxy of the time has been proved wrong, cruelly and fatuously wrong; and Galileo and Descartes doubtless lost an opportunity of displaying the heroism of Bruno and Spinoza. But a powerful motive of the drama will have been reduced to a nullity, if it be supposed that the Holy Office was prompted only by malice, or Galileo and Descartes by cowardice.

Galileo,¹ it will be remembered, was convicted of holding that the earth moved. This doctrine was declared to be "absurd, heretical, contrary to the text of Scripture", and Galileo was compelled to repudiate it. He defended himself on the ground that Scripture was not science. "Hence it appears," he said, "that when we have to do with natural effects brought under our eyes by the experience of our senses, or deduced from absolute demonstrations, these can in no wise be called in question on the strength of Scripture texts that are susceptible of a thousand different interpretations, for the words of Scripture are not so strictly limited in their significance as the phenomena of nature."² But this defence left out of consideration what was referred to in the charge as the "absurdity" and "heretical" character of the new theory. It was not its contradiction of Scripture texts that made it dangerous, but its contradiction of the prevailing belief. This was definitely committed to the immobility of the earth, and in concluding that the Copernican theory, advocated by Galileo, was a menace to it, the Holy Office was not mistaken.

But why should the immobility of the earth be a cherished belief, to be protected by the penalty of death? Men are not soberly burned at the stake or submitted to torment by due process of law, out of sheer bloodthirstiness, or on account of trivial offences. It must all appear childish and wanton, unless we can learn to recognize the immense human importance which once attached to what is now

¹ 1564-1641

² Quoted by Mézières, "Trial of Galileo," *Popular Science Monthly*, vol. X, 1877, p. 389

regarded only as an obsolete astronomy. For it was not merely that men wondered how, if the sun did not move, Joshua could have commanded it to stand still; the Copernican theory contradicted the entire practical orientation that dominated the imagination and justified the plans of Christendom. Never in the history of European civilization has common sense been so comprehensive and so highly unified as it was in Galileo's day. That synopsis of heaven and earth which was the theme of Dante's *Divine Comedy*, and the fundamental thesis of St Thomas's *Summa Theologiae*, was not an esoteric truth, but an illumination shared by common men, and revealing to them the objects of their daily hopes and fears. The earth was the centre of a compact and finite created world. It was prepared by the hand of God for man's habitation, and surrounded by sun, moon, and stars for his convenience and delight. God himself dwelt at the periphery of the system, where he could observe and regulate the human drama enacted at the centre. Man's fall and redemption were the very theme of nature, the key to its interpretation; and the earth as the scene of these transactions was its true centre.

Now let it be remembered that this image of nature was vividly present to the common mind, portrayed in every form of art, repeatedly implied in the postures of religious observance, and daily represented in common speech and gesture. And let it be remembered, furthermore, that this was an age in which secular and religious beliefs were not sharply divorced; when what men believed in particular was subordinated to what they believed on the whole, and when, in spite of a growing worldliness, men could never wholly forget the saving of their souls. Is it any wonder, then, that men were shocked when they heard it said that the earth moved, that it was only the loose swinging satellite of a sun that was but one of many suns? When the Christian imagination has never in the centuries that have followed been able entirely to adapt itself to a decentralized and infinite cosmos, with its limitless plurality of

worlds, is it any wonder that a Christian of the early seventeenth century should have been unable to face such a hypothesis? For a dozen centuries Europeans had been growing accustomed to the world of the Biblical and Ptolemaic imagination; this was for all practical purposes now *their* world, in which they had built their home and laid their plans, and which was endeared to them by every tradition and association. Surely, whatever the Inquisition may have been guilty of, it was not sheer brutality; for it was the instrument with which this age thought to protect itself and every good thing which it owned

When I bring myself to feel the force of these considerations, I am convinced that the tragedy of Galileo¹ is not so simple as is sometimes supposed. Neither he nor his accusers could have enjoyed an undivided mind. As they were not merely the wicked enemies of truth, so he was not merely a reckless iconoclast forced to keep silence from fear of physical torture. For both must have felt the conflict between loyalty to the existing order and assent to theoretical truth. The difference lay rather in the relative strength of the two motives. The officers of the church were in a position of responsibility; Galileo, in the quiet and isolation of the Belvedere, could free his mind from the thought of social consequences, while dealing with "natural effects brought under our eyes by the experience of our senses."

After his first trial Galileo attempted to avoid the charge of disturbing the common belief, by publishing his astronomical studies in the form of "a Dialogue . . . in which are discussed the two most important world-systems, . . . without any decision being arrived at between them."¹ In these dialogues the merits of both systems are argued, with the result that, while the advocate of the traditional system is the nominal victor, the evidence for the Copernican system is actually more convincing to any one qualified to judge. This was undoubtedly an attempt

¹ Published in 1632 Cf H Höffding: *History of Modern Philosophy*, trans. by B. E. Meyer, Vol. I, p 175.

to satisfy the general public by proclaiming in a loud voice, "The earth does not move," while at the same time whispering to his fellow-augurs, "but *we* know that it really does move." Galileo was by no means incapable of such a stroke, and it was their resentment at what they regarded as a bold trick that inspired Galileo's accusers with the bitterness which they manifested at his second trial. But taken in the light of the real conflict of motives which Galileo must have felt, and in the light of the policy pursued by other men by no means so witty and adroit as he, may we not believe that these dialogues were in part conceived as a serious attempt to reconcile theory and belief? Galileo was not a revolutionist, but he was jealous of his scientific reputation He wished to be true to the standards of exact research and at the same time avoid disturbing the public peace. And so he proposed to regard his scientific conclusions as "hypothetical," meaning that they were abstracted from belief. He thought that science might be permitted to go its own way, and freely entertain any idea that might recommend itself on purely theoretical grounds, provided that society could be protected from the premature attempt to put such ideas into practice. Society believes, the scientist affirms, they do so for different motives, and with different values at stake. It would be wise, then, to separate the theoretical and believing processes. They cannot, it is true, be absolutely separated, nor would that be desirable even if it were possible, but they can be regarded as different functions of society and prevented from directly interfering with one another.

§ 6. If I am mistaken in attributing such reflections as these to Galileo, there can at least be no doubt in the case of Descartes.¹ The news of Galileo's conviction in 1633 reached Descartes just as he was in the act of publishing his *De Mundo*, in which he maintained the doctrine of the motion of the earth. Although, as Descartes himself

Descartes's
Reconciliation
of Theory and
Belief

¹ 1596-1650.

afterwards affirmed, this doctrine was essential to his whole philosophy of nature, he at once abandoned the project. And when he returned to the topic in his *Principles of Philosophy*, he had found a way to reconcile his theory with the accepted belief. He defined motion as "the transporting of one part of matter or of one body, from the vicinity of those bodies that are in immediate contact with it, or which we regard as at rest, to the vicinity of other bodies"¹. Now, according to the Cartesian theory of planetary motion, the planet is embedded in a fluid which sweeps vortex-fashion round the sun. It follows that, while the vortex does move, the planet, in this case the earth, does not move, since it remains fixed in relation to the matter immediately adjacent to it.

Now why should Descartes attach importance to what we do not hesitate to call a quibble? Is it merely a proof of timidity and disingenuousness? Descartes was not, it is true, of the stuff of which martyrs are made; but he was nevertheless a man of more than average courage, and of eminent intellectual honesty. The explanation lies elsewhere. He did not pander to his age for purposes of private advantage, but he did sympathize with his age, and he did desire practically to identify himself with it. The motion of the earth meant to his age much what the abandonment of the institution of marriage or of the principles of democracy would mean to ours, it was a symbol of failure and of return to chaos. That Descartes was profoundly concerned at the conflict between theory and belief, between that intellectual freedom which was the condition of truth and that uniformity of sentiment which was the condition of social stability, is proved beyond doubt by the most personal of his writings, the famous '*Discourse on Method*'. There he concludes that just as when we propose to rebuild the house in which we live, we must nevertheless occupy some quarters while the work is going on, so it is necessary to believe practically, even when the

¹ Descartes *Principles of Philosophy* (1644), trans. by Veitch, p. 245.

theoretical judgment is suspended. Descartes proposes, therefore, to regulate his practice conformably to the opinions of those with whom he has to live. And since neither society nor the individual can make progress if they are forever examining the ground at their feet, he proposes for practical purposes to adhere steadfastly even to doubtful opinions, once they are adopted, "imitating in this the example of travellers who, when they have lost their way in a forest, ought not to wander from side to side, far less remain in one place, but proceed constantly towards the same side in as straight a line as possible, . . . for in this way, if they do not exactly reach the point they desire, they will come at least in the end to some place that will probably be preferable to the middle of a forest."¹

Galileo and Descartes were divided against themselves through feeling the weight of two great human motives, rationalism and conservatism. Bruno, Campanella, Ramus, and Vanini, having identified themselves more uncompromisingly with the first of these motives, antagonized the second and were overwhelmed by it. The history of these six men testifies, not so much to the cruelty and duplicity of human nature, as to the almost unconquerable resistance of an idea which society has built into its foundations.

§ 7 It may be inferred from the fate of these intellectual pioneers that established belief is capable of taking care of itself. Without doubt there is a heavy inertia in belief, that saves it from being too easily overthrown. Not only are new ideas distrusted by those whose enterprises they threaten to discredit; but they have difficulty even in gaining access to the mind. They must always meet and overcome the charge of "absurdity" that bespeaks the settled habits of common sense. The author of the *Religio Medici* shows a charming indifference to the absurdities of his day. They are so remote from common sense that they may be tolerated without

The Natural
Conservatism of
Belief Present
Tendencies

¹ Descartes *Discourse on Method* (1637), trans. by Veitch, p. 25.

fear of any consequences for life. "Some," he says, "have held that Snow is black, that the earth moves, that the Soul is air, fire, water; but all this is Philosophy, and there is no delirium."¹ A recent writer tells us that "all men who have lived to a certain age have learnt that there are certain facts, certain experiences not at all connected with the supernatural, which they dare not tell of for fear of being put down as inventors . . . Just as the old woman was ready to accept her travelled son's yarns of rivers of milk and islands of cheese; but when he deviated into the truth she stopped 'Na, na!' she said, 'that the anchor fetched up one of Pharaoh's chariot wheels out of the Red Sea, I can believe, but that fish fly! Na, na! dinna come any o' your lies over yer mither'"²

But it is worthy of remark that common sense is not to be conjured with as it once was. We have grown first accustomed to absurdities, and then fond of them. I am not sure that in our day the burden of proof does not lie with the familiar fact. We expect to be surprised, and are suspicious of a theory that lacks novelty. This has doubtless always been the case with intellectual radicals, but it is fast becoming a general state of mind. Many reasons may be offered for the change. First of all, it is due to the high conductivity of modern society. The mood of one individual is transmitted with incredible rapidity to the entire community. The doubts, conjectures, and conclusions of theorists are promptly communicated to the public, which straightway itself strikes a theoretical attitude. Again, the general triumph of democratic principles has made a difference here. Intellectual exclusiveness does not suit the temper of liberal societies. It must be shared and shared alike with knowledge as with other commodities. The best is none too good for every man; hence there can be no living on the paternalistic bounty of a class of wise men. It was once thought that if the eyes of a few were

¹ Sir Thomas Browne *Religio Medici* (1646), Temple Edition, p. 115

² H. Fielding *Hearts of Men*, pp. 274-275

opened they might lead the rest, but now none consent to remain blind. And, finally, the humanitarian and utilitarian sentiment requires that all knowledge shall promptly be put to use. In order that men may be saved by it, or the conditions of life bettered, or mankind be brought a step forward, knowledge must be instantly worked into life and made to serve.

All these and other tendencies of the day conspire to produce an impatience and over-haste in belief. We suffer from a new kind of credulity. It was once complained that men are too easily inclined to believe what their fathers believed, that men lack originality and independence. But there is now reason to fear that men may too easily believe what no one has ever believed before. Men with settled convictions may become as rare as were free-thinkers in an earlier time. And the consequences must be scarcely less detrimental to social welfare than the consequences of the earlier complacency and narrow-mindedness. For inquisitiveness and fluidity of mind, though they condition the discovery of new truth, are intolerable in society at large. Theory must correct and enlighten belief, but it cannot, consistently with the conduct of any considerable enterprise, replace belief.

§ 8. I cannot hope to offer any general solution of what appears to be a recurrent and inevitable problem. It is of the very essence of life that it should be both conserved and changed. To belief, society owes its cohesiveness and stability; to theory, it owes its chance of betterment. And since every human motive is liable to exaggeration, society will always suffer harm on the one hand from complacency and tyranny, and on the other hand from reckless innovation. Conflict between the mood of theory and the mood of belief, or between the party of theory and the party of belief, will doubtless remain to the end a source of confusion and waste. And this conflict will be most bitter where the most is at stake, respecting those ideas, namely, in

The Need of
Mediation be-
tween Theory
and Belief

which society is most deeply involved. ✓ But I think that we are justified in drawing certain inferences that are not wholly insignificant.

In the first place, since there is a virtue in belief that has no equivalent in theory, it is wise to surrender belief reluctantly A due recognition of the gravity of such a crisis permits no other course. Some degree of stolidity and inertia is a mark of moral poise. Nor is this incompatible with intellectual alertness and curiosity. It requires only that one shall acquire reserve, and refuse to admit strange theories at once to the circle of one's dear convictions. Similarly, conservatism in social action is not incompatible with the liveliest and most serious speculation concerning human institutions, but if this is to be possible, society must act more slowly than the curious-minded speculate, and insist that ideas be long tested, and gradually absorbed.

There is also a certain obligation in this matter that rests with theorists, and more especially with those who are devoted to the examination of the most fundamental ideas. It happens, doubtless because these ideas have not as yet permitted of exact treatment, that there is here the least barrier between theory and belief. Political, social, and philosophical theory speak the language of common sense, using terms that suggest the objects of daily life. It is as though the anthropologist were to allude to his personal friends. But there can never be any exact correspondence between the terms of theory and the terms of belief, because they are defined by different contexts, and belong to different systems. All the more reason, then, why different symbols should be employed, and the layman be spared the needless fear that his bread or soul's salvation hangs on the fortunes of an argument.

‡ What I have said applies with peculiar force to the philosopher. No one else debates such grave issues; nor is there any other region of theoretical inquiry in which differences and fluctuations of opinion are so marked. And I refer here, not especially to those who proclaim themselves

metaphysicians, but to all theoretically-minded persons, including scientists and moralists, who busy themselves with ultimate questions. It would seem to follow that society is in special need of avoiding a hasty assimilation of such theory. And yet the words which it ordinarily employs are words which symbolize to mankind their most trusted and cherished objects of belief. No one has taken the name of the Lord his God in vain so frequently and so unconcernedly as the philosopher. While philosophers dispute, believers witness with dismay the apparent dissolution, not only of God, but of immortality, freedom, marriage, and democracy as well. I wish that philosophy, for theoretical purposes, might speak a language of its own, and settle its disputes in a vernacular that does not arrest the attention of the community. If this were possible, philosophy would be better entitled to the full benefit of that immunity from direct social responsibility which is most conducive to clear seeing and straight thinking. And society could afford to wait for the application of a more refined and better-tested truth.

No theorist is under obligation immediately to give society the benefit of his theorizing. It was said of Samuel Clarke, who sought to overthrow atheism by scientific argument, that no one had really doubted the existence of God until he undertook to prove it. There will always be an absolute difference between rational assent on theoretical grounds, and implicit belief. The theoretical mood, even when a conclusion is reached, is a state of practical doubt. When the transition is made from believing to theorizing, the loss is certain, and he who lightly encourages such a transition is guilty of recklessness and irresponsibility. It is a grave matter to substitute one's own theory, however well-reasoned, for another man's belief. For the belief is a part of the believer's life, a condition of the confidence and hopefulness of his action. It is a mistaken idea that honesty compels every theorist to be a propagandist; it is true, rather, that in the great majority

of instances, the sentiment of humanity, and a serious regard for the well-being of society, require that he shall not.

The task of mediating between theory and life is perhaps the most delicate and responsible task which it falls to the lot of any man to perform. And it cannot be denied that the theoretical habit of mind tends to disqualify one for undertaking it. For the investigator is trained to neglect every consideration but such present evidence as he can obtain. The human probability that his conclusions will some day, perhaps tomorrow, be over-ruled by new evidence, he properly excludes from his consideration. It is not relevant to his problem. But while theories may be changed with little cost and with certain gain, this is not true of beliefs. Here the cost is more certain than the gain. And the very consideration which the theorist is trained to neglect, and must neglect if his mind is to be free, is here of paramount importance. He who is to advise men must be the friend of men. He must understand their hopes and share their responsibilities. Hence he must regard every idea with reference to its effect on that present, concrete, human state of mind, from which all social action must proceed. No one has proclaimed more eloquently than Francis Bacon that it is to knowledge that man owes his triumph over nature and his advancement in all noble arts. But he would willingly, I think, have said of established belief, what he said of antiquity, that it "deserveth that reverence, that *men should make a stand thereupon* and discover what is the best way, but when the discovery is well taken, then to make progression."

CHAPTER II

SCIENTIFIC AND RELIGIOUS MOTIVES IN PHILOSOPHY

§ I. THE distinction between theory and belief is of the utmost importance, not only for the understanding of the relation of philosophy to life, but also for the understanding of the development and present meaning of philosophical doctrines themselves. For philosophy, owing to its peculiar relations with science and religion, has been governed by both motives

The Difference
between Science
and Religion,
and the
Ambiguous
Position of
Philosophy

There are two fundamental differences between science and religion, a difference of subject-matter, and a difference of motive¹. Their difference of subject-matter corresponds to the difference between proximate and ultimate causes. Physical science has to do with particular interrelations and rearrangements among facts of nature, religion has to do with the general character of nature as a whole, or with whatever may lie beyond nature and still belong to the environment of life. Their difference of form corresponds to that difference between theory and belief which we have just discussed. Science is the most conspicuous example of the method and spirit of disinterested research. Its development has been marked by the purification of its theoretical motive, until, despite its ulterior usefulness, it is in its own procedure of all human activities the most indifferent to the clamor of interests. Religion, on the other hand, is essentially a plan of action.

¹ The subject-matter of science will be discussed in the next chapter. We have here to do primarily with its theoretical motive.

Religion is man's hope or despair of salvation. Thus while science expresses itself in neutral or indifferent terms, the interests at stake being eliminated and the application being held in reserve, in religion the application is already made. Science is a description of its subject-matter, religion is something done, something feared, or something hoped, *in view* of its subject-matter

Philosophy has from the beginning served these two masters. It has attempted in the spirit of science, and with a like theoretical detachment, to carry knowledge beyond the limits of science. But it has also attempted to formulate religious belief, giving articulate expression to the religious emotions and elaborating a plan of salvation. Philosophy is thus resorted to by two classes of persons. By some it is expected to afford a rigorous theoretical solution of special problems that lie outside the range of the positive sciences, problems such as 'consciousness,' 'space,' 'causality,' 'truth,' and 'goodness.' By others it is expected to furnish the age, or any hungering soul, with a summary and estimate of the world for the purposes of life. To supply the former demand, philosophy must be technical and free from ulterior motives, while to supply the latter, it must be humane and keenly alive to all the deeper needs and passions. Philosophy is thus at once a recondite investigation, and a popular oracle, dispensing logical subtleties to the learned and homely wisdom to the vulgar. And in consequence of this double office, philosophers divide among themselves, and speak a mixed language.

§ 2. Science, as we have seen, is by no means exclusively theoretical in motive. Indeed applied or popular science undoubtedly precedes theoretical science. The liberation of the intelligence from immediate attendance upon action, and its independent exercise in its own interest, is a reward of past service, as well as an opportunity of higher service. The intelligence has had to earn its place in the economy of life. As a primitive

The Theoretical
Motive in
Science

necessity, intelligence is the capacity to do the right thing under given circumstances. The "right" act is always relative not only to circumstances, that is, to the occasion or environment, but also to some actuating interest. Its rightness consists in its so meeting or modifying circumstance as to satisfy interest. Circumstance will accordingly evoke one or the other of two types of right or intelligent response. It will be resisted or evaded, disliked or feared, on the one hand; on the other hand, welcomed, used, or desired. In this immediate relation to life, then, both causes and effects are regarded under the aspect of their maleficence or beneficence. And from this view of nature it is but a short step to animism, or the view that natural causes are governed by *animus*. Certain typical processes of the environment with which one is compelled to treat, are regarded as governed by a consistent friendliness or hostility. The environment is socialized, and the method of conciliation or retaliation is extended beyond the circle of human and animal associates to the wider realm of natural causes. In other words, beneficent causes are construed as *benevolent*, and maleficent as *malevolent*. Wherever effects are regarded as good or bad, and their causes as working good or working evil, this is probably always the hypothesis which is nearest at hand and most plausible. It appears, long after the development of mechanical science, in the instinctive resentment or gratitude with which one greets a turn of fortune. There thus arises a primitive science in which effects are benefits or injuries, and causes friends or enemies; in which, in short, natural events are wholly assimilated to life.

Out of this primitive science, mechanical or theoretical science has gradually developed, chiefly through the operation of two motives. In the first place, the method of conciliation and retaliation was experimentally discredited as a mode of controlling nature. For the immediate exigency, at any rate, it proved more efficacious to cultivate the soil and observe the turn of the seasons than to sacrifice to Demeter,

to keep one's powder dry than to put one's trust in God. In the second place, as soon as men could breathe more easily and indulge themselves more freely in the play of their natural powers, they grew in idle curiosity. They came, in other words, to observe, regardless of their hopes and fears. Astronomy was probably the first science in the modern sense, because the stars, at once conspicuous and, relatively removed from the theatre of action, have always tended to excite an apathetic curiosity. Through the operation of these two motives, effects were divested of their practical coloring, and causes of their friendly or hostile intent. This did not mean that either effects or causes lost their bearing on life, but only that that bearing was for the purpose of knowledge eliminated as accidental. Thus a physical substance has certain distinguishing properties by virtue of which it is either food or poison, and celestial bodies compose certain configurations by virtue of which man feels the light of day or the darkness of night, the warmth of summer or the blight of winter. But it is the mark of developed science that these properties and configurations are recorded without reference to the sequel, and in terms purged of the comment of passion.

The development of a purely theoretical science has, as is well known, immeasurably increased the contribution of science to life. In this case, at least, the independence of the theoretical activity is the principal condition of its usefulness. The reason for this is not obscure. In so far as knowledge is restricted to the service of existing needs, it confirms the belief in the finality of these needs; but when emancipated from such service, it becomes a source of new needs — stimulating initiative, and opening a prospect of unlimited growth. The application of knowledge is the more varied and fruitful because reserved for the unforeseen occasion. It thus becomes the function of science to accumulate that unappropriated surplus of intelligence from which life derives its resourcefulness and strategy,

and by which it is enabled to carry on the constructive enterprise of civilization.

§ 3/ Religion, like science, is grounded in the need of doing the right thing under the given circumstance: like science, it is a matter of adaptation. It arises from the need of doing the right thing on the whole, in view of the totality of circumstance — from the need of arriving at a final adaptation. Religion is the attempt to deal with headquarters, to obtain a hearing at the highest court, some guarantee of the favor of the over-ruling authority. As theoretical science advances and the phenomena of nature are referred to proximate causes, the ultimate causes retreat steadily into the background, and, gathered into one, become God as opposed to nature. The duality of God and nature may from thenceforth be characterized by any degree of separateness. Where God is conceived transcendentally, or independently of his works, it is assumed that a man may save himself by treating with God directly, giving no heed to the course of events in the temporal world. Where, on the other hand, God is conceived in terms of the order of nature and history, as their immanent or over-arching unity, his favor may be gained only by complete adjustment to the ways of this world.

Thus religion, like science at its dawn, views the environment under the aspect of its bearing on life. The over-ruling powers are known and judged by the good or evil which they work. But whereas this is the primitive form of science, in which the scientific motive is not as yet specialized and refined, it is the final form of religion. God is the name for the over-ruling powers as sources of fortune. In so far, and only in so far, as these powers are regarded with love or dismay, with hope or fear, do they constitute the object of religion. Religion is as essentially a matter of life and passion, as is science in its developed form a matter of theoretical detachment. So that science and religion have to be identified, not only with their respective

objects, but with their respective forms of expression. Science, the interest in the proximate causes of things, becomes the unique example of theory: and religion, the interest in the ultimate causes of things, the unique example of belief.

§ 4 It is clear, however, that this correlation is arbitrary. Theoretical science is eventually assimilated to life, and finds expression in popular and applied science. In other words, there is a *belief* concerning *proximate* causes. And similarly there is a place for the *dispassionate theoretical* study of *ultimate* causes. In other words, as popular or applied science is related to pure science, so religion is related to pure philosophy.

The Confusion
of the Philo-
sophical Mo-
tive The Place
of a Purely
Theoretical
Philosophy

If this correlation indicates the proper place of philosophy, then it must be recognized that the traditional philosophy has reached no such clear separation of its theoretical motive as has been reached, on its part, by science. And it may be objected that the cases are not parallel. There is a reason why the practical motive should outweigh the theoretical in the examination of ultimate causes. For it is undoubtedly the pressure of practical necessity — the brevity of life, and the momentousness of the issues involved — which in this case forces a conclusion when the evidence must necessarily be incomplete. Whereas in the field of science theory may advance far beyond belief, accumulating an ever increasing surplus of knowledge over practice, here the reverse is the case. For the saving of his soul, a man must convert theoretical probabilities into subjective certainties: he must believe more than he knows¹. In the conduct of his worldly affairs he may live within his means, but in his religion he must run into debt. Thus a strictly theoretical conclusion respecting ultimate causes will always be more limited and tentative than the corresponding belief. And belief, with its greater positiveness, with its daring and its

¹ Cf. below, pp 265-267, 345-347, 369-370.

air of finality, will tend to obscure the cautious hypothesis of theory, and to fix itself in the minds of men as the only expression of the interest in ultimate causes. That for this reason the work of the human intelligence *tends* to be divided between scientific theory concerning proximate causes and the religious belief concerning ultimate causes, cannot be disputed.

But it is evident that if life is served by a theoretical detachment in the one case, the same will be true in the other case. A rigorously theoretical philosophy, in which ultimate causes are examined by the method of critical analysis, in which the passions are repressed and the application held in reserve, affords the greatest promise of an enlightened, and therefore effective, religion. For the virtue of belief, whatever be its object, whether it be the particular inter-relations of the parts of nature, or the ground and constitution of nature as a whole, is its *truth*. And the speediest and most reliable access to truth lies in the specialization and rigorous exercise of the theoretical method. No faith will be sound at the core which does not contain within itself whatever theory is available. Doubtless faith must overlap theory, as it must be more stable and conservative, but the method of faith cannot supersede or confuse the method of theory, without corrupting its most faithful servant. Strictly speaking, it is as important for religion to promote the development of a rigorously theoretical philosophy, as it is for engineering to promote the development of theoretical physics.

§ 5. The present ambiguous position of philosophy is due to the modern opposition of science and religion, and to this habit of linking pure theory with science, and ultimate questions with religion. Those philosophers who are governed by the theoretical motive, and to whom philosophy is first of all a disinterested attempt at exact knowledge, tend to identify it with science; those on the other hand, with whom the subject-matter

The Subordination of Science to Ethics and Religion in Ancient and Medieval Thought

of philosophy is of paramount importance, whose chief object of interest is the ultimate cause or world-ground, tend to identify it with religion.

But the disjunction between science and religion is a comparatively recent development. In ancient and mediæval times it was largely prevented by the general acceptance of the method of *teleology*. The dominant categories of Greek thought were forged in the Socratic age, and expressed its characteristic humanism and moralism. The Platonic theory of knowledge, adopted by Aristotle, continued by the Neo-Platonists, and bequeathed to Christian scholasticism, was centred in the conception of the good. To understand a thing was to see the good of it.¹ In so far as this theory of knowledge prevailed there was no inevitable opposition between religion and science, other than the general opposition between tradition and enlightenment. The method of religion — the interpretation of nature for life, was also the method of science. In the application, in the use or value of objects, was found also their theoretical explanation. The basal science, the model of scientific procedure, was not a physics which abstracted from life, but an ethics which rationalized life. And where science and religion employed the same method, philosophy was not compelled to take sides. It could be at once an extension of science, and the refinement of religion. Philosophy was simply the sustained and systematic pursuit of wisdom: the finishing of knowledge, as distinguished from the fragmentariness of science, and the grounding of belief, as distinguished from the careless superficiality and complacent dogmatism of religion.

The Platonic theory of knowledge was both retained and reinforced by Christianity. In Platonism, teleology had been derived from ethics and extended to religion; in Christianity, it was originally derived from religion. But there was in both the same priority of the fundamental principle of life. Mediæval thought, like ancient thought,

¹ See below, pp 115, 167

was biocentric or anthropocentric. Nature was accounted for and explained in terms of its bearing on man. It was grounded in the dispensation and providence of God with reference to the well-being of his creatures. The perfection of the ultimate cause, the beneficence of the creative design, was held to afford the most truthful account of the course of nature. In short, theology displaced ethics in the system of knowledge. And with theology as the basal science, it is evident that there was as yet no ground for a radical difference between science and religion. Nor was there any radical difference between either and philosophy. That which theology understood by the light of revelation, philosophy explored by the natural light of reason, while between philosophy, and science in the narrower sense, there was no difference save that between complete and partial knowledge.

§ 6 So long as science was thus dominated by the categories of religion, philosophy suffered no embarrassing necessity of taking sides. When this domination came to an end with the decline of scholasticism, an attempt was made to keep the peace upon a new basis. Whereas the categories of religion had formerly been imposed upon science, the categories of science, independently derived, were now to be extended to religion. In the seventeenth and eighteenth centuries philosophy derived its impetus from the new scientific movement, and consisted primarily in the attempt so to generalize the method of science as to enable it to afford a proof of the great tenets of traditional belief. This common motive appears in the otherwise widely contrasted tendencies of these two centuries.

The Cartesian movement, which dominated the seventeenth century, was inspired by the rise of mathematical physics. In mathematics Descartes found a clearness and cogency in which the traditional philosophy was notably lacking. It revealed to him something of the possibilities

The Extension
of Science to
Religion in the
Seventeenth
and Eighteenth
Centuries

of knowledge, if the natural intelligence could but be freed from ulterior motives and from the heavy burden of accumulated tradition. He was astonished "that foundations, so strong and solid, should have had no loftier superstructure reared on them" ¹ Such a superstructure Descartes and his followers essayed to rear, adopting the "analytical method" from mathematics, and applying it to a metaphysic of God and the soul. This attempt culminated in the system of Spinoza,² with its mathematical terminology, its deductive order, its rigorous suppression of anthropomorphism, and its conversion of God into the ultimate and indifferent Necessity.

The Baconian movement, which began coincidently with the Cartesian movement, but did not assume the ascendancy until the following century, was inspired by the rise of empirical and experimental science. Bacon expressed the spirit of discovery — the significance of Galileo's telescope rather than of his analytical laws of motion. Hence the movement which emanated from Bacon employed the method of observation rather than the method of mathematical deduction. Locke,³ to whom the movement owed its ascendancy in the eighteenth century, was associated with the experimental physicists of his day, and was suspicious of a priori necessities. He proposed to pursue "the plain historical method" But neither Locke, nor the Deists who followed him, had any doubt of the possibility of establishing the truths of religion by the method of science. Christianity was not only "not mysterious," but was proved beyond reasonable doubt by empirical evidence. God was a simple inference from effect to cause; from the existence of nature to the existence of its creator, and from the contrivances of nature to the intelligence of its creator.

During these two centuries, then, there was no impassable

¹ *Discourse on Method*, trans by Veitch, p. 8.

² 1632-1677

³ 1632-1704.

gulf between science and religion, and no dilemma for philosophy. The philosopher was simply one who applied the method of science to the subject-matter of religion. Science was opposed to religion only in so far as it was narrow; and religion was opposed to science only in so far as it was unreasoning. It was the office of the philosopher to expand the scope of reason, or to justify faith by enlightenment.

§ 7. The transition from the thought of ancient and mediæval times to that of the seventeenth and eighteenth centuries, had been marked by the rejection of anthropomorphism. The centring of the system of knowledge in ethics and religion had been seen to involve an initial dogma, which both destroyed the cogency of knowledge and confined it within narrow bounds. In declaring its independence, the science of the Renaissance had represented the ideal of disinterested knowledge, the acknowledgment of necessities and facts without reference to the bias of life. Physics had become the rallying-point of a new army for the conquest of the unknown. This new campaign had presupposed the possibility of extending the conquest to the great problems of religion. Faith and authority had been renounced only in the sure prospect of getting a more valid title to their objects.

But the close of the eighteenth century was marked by a new crisis, due to the failure of this attempt to extend physics to religion, and precipitated by the charge, made by the most eminent philosophers of the day, that the failure was necessary and hopeless. In England, David Hume¹ argued the ambiguity and inconclusiveness of the inference from nature to God, showing that such natural causes as can be verified by observation fail utterly to satisfy the demands of religion. On the Continent, Immanuel Kant²

¹ 1711-1776

² 1724-1804. The rationalistic religion of Spinoza, with its entire abandonment of teleology, had already been rejected by popular thought, as essentially irreligious. Cf. below pp. 115-117, 168.

confirmed the criticism of Hume, and added to it the destruction of the venerable and feeble Cartesianism of his day; contending that to deduce God from the idea or definition merely, must fail to establish his existence. In other words, the method of empirical science relying on sensible fact, and the method of exact science relying on mathematical or quasi-mathematical concepts, had alike failed to justify religion. There resulted a new division of thought, the division broadly characteristic of the nineteenth century, between the party of science and the party of religion. And at the same time philosophy was confronted with the dilemma which has made its present position so ambiguous. Apparently compelled to choose between science and religion, it has itself divided into two parties. those who have followed science for the sake of its theoretical motive, and those who have followed religion on account of its subject-matter.

The division between the scientific philosophers and the religious philosophers was further accentuated by the passing of a certain type of thinker. The great scientists and the great speculative metaphysicians of the seventeenth and eighteenth centuries were in many instances the same individuals. Such was the case, for example, with Descartes, Hobbes, Leibniz, and even Kant. M Abel Rey, in *La Philosophie Moderne*, writes: "All the great philosophers were remarkable savants, and the great *savant* never disdained to philosophize. So that one may regard as peculiar and characteristic the complete separation which existed for a time in the nineteenth century, not between the investigations (this is legitimate and necessary), but between the investigators" ¹. And the reason for this lay, as M Rey points out, not only in the movement of ideas which has just been described, but also in the circumstance that science had become so vast in bulk as to exceed the capacity of any single individual. The

¹ pp. 20-21

man of all science was replaced by the man of one science, confident of his ground in proportion to the narrowness of his field, and suspicious of all attempts to deal with ultimates or finalities. Unless the philosopher was himself to become a specialist, and confine himself to the categories of one science, he seemed in very self-defense to be compelled to adopt an independent method of his own; a method opposed, not to one science in particular, but to science as a whole. And he found that method in religion, already united with the proper philosophical subject-matter

§ 8. Professor Émile Boutroux sums up the admirable Introduction to his *Science et Religion dans la Philosophie*

The Scientific
Philosophy and
the Religious
Philosophy

Contemporaine, as follows. "Science and Religion had no longer, as with the modern rationalists, a common surety — reason: each of them absolute in its own way, they were distinct at every point, as were, according to the reigning psychology, the two faculties of the soul, intellect and feeling, to which respectively they corresponded. Thanks to this mutual independence, they could find themselves together in one and the same consciousness; they subsisted there, side by side, like two impenetrable material atoms in spacial juxtaposition. They had agreed explicitly or tacitly to abstain from scrutinizing one another's principles. Mutual respect for their established positions, and thereby security and liberty for each — such was the device of the period"¹ Corresponding to this dualistic fashion of thought, there appeared in the course of the last century the scientific philosophy, or positivism, and the religious philosophy, or romanticism.² Each of these types of philosophy was connected with one of the great destroy-

¹ p 35 This book has recently been translated into English by J Nield Cf the Introduction, *passim*

² I am using this term to mean a philosophy in which the spiritual ground or centre of things is *postulated*, or accepted by an act of faith It is the philosophy in which the motive of religious belief is allowed to dominate. Cf. below, pp. 152-154

ers of the philosophy of the past — positivism with Hume, and romanticism with Kant.

Hume's criticism was unmitigated. It placed the objects of religious interest absolutely beyond the range of reason. The book of divinity, since it consists neither of "abstract reasoning concerning quantity or number," nor of "experimental reasoning concerning matter of fact and existence," must be committed to the flames: "for it can contain nothing but sophistry and illusion."¹ Comte, who followed a century later, gave to positivism a more constructive and hopeful turn, extending to mankind the prospect of the limitless growth of science, and the up-building of civilization through the progressive conquest of nature and improvement of man. But Comte's condemnation of the former religious metaphysics was, if possible, more severe than that of Hume, for he correlated it with the infancy and childhood of the mind. Finally, with Herbert Spencer, the metaphysics of former times was formally tried, convicted, and banished to the realm of the 'Unknowable'. The scientist, whether mathematician or experimentalist, was left in absolute possession of the sources of enlightenment, he became not only the consulting engineer, but oracle and wiseman as well.

With Kant, on the other hand, the negation of the older rationalism paved the way for a philosophy of faith. Although positive knowledge was restricted to the hierarchy of the physical sciences, the reason was left in possession of the necessary and valid ideal of the 'Unconditioned'; while God, Freedom, and Immortality, the objects of religion, found their ground in the moral will. Although they might no longer be judged true, according to the canons of theory, they must be *believed* for the deeper and more authoritative purposes of life. This provision of the Kantian critique is the prototype of romanticism, the philosophy dictated by religion. Romanticism did not

¹ Hume *Enquiry concerning the Human Understanding* (1749), Selby-Bigge's edition, p. 165.

seek, like the philosophy of the previous centuries, to justify the articles of faith by the procedure of science, but to justify the *attitude* of faith, and clothe it with authority in its own right. Romanticism involved, therefore, no conversion of the passionate terms of religion into the dispassionate terms of theory; it reaffirmed the claims of religion in the spirit and language of religion, transforming them only in so far as was necessary to give them unity and conscious expression.

§ 9 In positivism and romanticism the two motives of philosophy became sharply separated and opposed. Positivism is philosophy driven into the camp of science by loyalty to the standards of exact research, ^{Naturalism and Idealism The Rise of Pragmatism and Neo-Realism} romanticism is philosophy merged into religion through its interest in the same ultimate questions. These two tendencies determined the course of philosophy in the nineteenth century, and they are represented today by naturalism and idealism respectively. In 'naturalism,' the positivistic tendency develops in the direction of a systematic materialism, or in the direction of a more refined criticism of scientific concepts. In 'idealism,' the romantic tendency amplifies and reinforces the theory of knowledge upon which it must rest its case — the theory of the priority of the forms and ideals of the cognitive consciousness. But the difference between naturalism and idealism, like that between science and religion, with which they are respectively correlated, lies not so much in the disagreement of theory as in an opposition of attitude and method. The exponent of naturalism is governed by that reserve and apathy which belong to the scientist's code of honor, the idealist carries into his philosophy all the importunity and high aspiration of life. For him "the teleological standpoint, that of inner meaning or significance," is "the standpoint of philosophy itself."¹

¹ E. Albee, "The Present Meaning of Idealism," *Philosophical Review*, Vol. XVIII, 1909.

To naturalism and idealism have latterly been added 'pragmatism' and the new 'realism.' Whether these more recent tendencies represent the philosophy "qui commence," and naturalism and idealism the philosophy "qui finit," will be certainly known only by those of a later generation. At present they enjoy no such prestige as is enjoyed by their rivals. Naturalism derives credit from the triumphs of science, idealism from the loyalties and hopes of religion. Both pragmatism and realism, furthermore, have begun as revolts, and the very vigor of their protest testifies to the strength of the resistance which they must overcome. But there can be no doubt of their virility, and of their capacity for growth

Pragmatism and realism are agreed in opposing both the narrowness of naturalism and the extravagance of idealism. Both seek to unite the empirical temper of the former with the latter's recognition of problems that lie outside the field of the positive sciences. They accept neither the finality of physical fact nor the validity of the ideal of the absolute. Their differences are scarcely less striking than their agreement, and may in the end drive them far apart. Pragmatism is primarily concerned to dispute the monistic and transcendental elements of idealism, and to construe life and thought in terms of that human life and thought that may be brought directly under observation, and studied without resort to dialectic. But life and thought remain the central topic of inquiry, and tend without sufficient warrant to usurp the centre of being. In short, pragmatism is never far removed from that dogmatic anthropomorphism, that instinctive or arbitrary adoption of the standpoint of practical belief, that is so central a motive in idealism. Realism, on the other hand, reacts not only against absolutism, but against anthropomorphism as well. Realism departs more radically from idealism than does pragmatism. Were the dilemma a real one, pragmatism would find more in common with idealism, and realism with natu-

ralism.¹ For realism, like naturalism, detaches itself from life, and attempts to see things in their native colors through a transparent medium. But the dilemma is unnecessary. It proves possible to be both empirical and rigorous after the manner of science, and also emancipated from exclusive regard for physical fact

And it is this possibility that defines the opportunity of realism. There are exact methods other than those of manual experimentation; there are other entities than bodies; and other types of relation and determination than those of physics. There is room, as we have seen, for a philosophy that shall search beyond the limits of science for the solution of those problems which underlie religious faith. Philosophy is rightly held responsible for the solution of these problems, if not in the form of verified certainty, then at least in the form of the most reasonable probability. But as in the case of science, so here also, that theory will best serve life which abstracts from life. The profit of religion, like the success of any worldly enterprise, is conditioned by the truth of the presuppositions, the correctness of the adaptation, on which it proceeds. What nature will not tolerate, nature cannot be made to tolerate through any sheer assumption of superiority. Hence to cherish illusions is to buy a subjective satisfaction at the cost of real failure. To know the worst, if such it be, is as important as to know the best; and incomparably more important than to dream the best. Religion is no exception to the rule that man conquers his environment, and moulds it into good, through forgetting his fears and renouncing his hopes, until he shall have disciplined himself to see coolly and steadily. For what he then sees becomes thereafter the means through which his fears are banished and his hopes fulfilled. It is necessary that human passions should be expressed, but their expression is not the function of philosophy. It is necessary to instruct

¹ Thus Bergson the pragmatist has much in common with a voluntaristic idealism; and the realist, B. Russell, approaches naturalism. Cf. below, pp. 345-347

human passions, to illuminate and guide them by knowledge. But even this is not the first function of philosophy For the philosopher's is the prior task of seeking that knowledge itself from which the passions may derive their light and guidance.

PART II
NATURALISM

CHAPTER III

THE SCOPE AND METHOD OF SCIENCE

§ 1. BY naturalism is meant the philosophical generalization of science — the application of the theories of science to the problems of philosophy. Both philosophy and science have, as we have seen, a permanent and institutional character. Each has its own traditions, its own classic authorities, and its own devotees. But naturalism proposes to make the institution of science serve also as the institution of philosophy. This attempted unification of knowledge is perennial. Each epoch of European thought has had its characteristic variety of naturalism; in which its favorite scientific theories have been used to satisfy its peculiar philosophical needs. Thus the atomic theory of the ancients, the mechanical theory of the seventeenth and eighteenth centuries, and the 'energetics' of more recent times, have each in turn been presented in the form of a *Weltanschauung* or general view of life.

The scientist proper, the man of special research, becomes a naturalistic philosopher only when he acts in a new capacity. As scientist, in the strict sense, he is non-committal with reference to philosophical problems. He adopts and employs a technique which is authorized by the consensus of experts within his own field. His problems are the unsolved problems of his forerunners and fellow-workers; his method, a variation or refinement of methods which have already proved fruitful. He is not troubled by the supposed paradoxes of space and time, or by such problems as the nature of causality, the unity of the world, and the meaning of truth. He moves, in short, within intellectual limits which he does not question, and

of which he may be even unconscious. But a scientist is also a man, and hence may readily become a philosopher as well. In hours of unprofessional meditation, his mind may turn to those more ultimate problems which are perpetually pressing for solution. And he may then assert that the solution of these problems lies in the application of the discoveries of science. Such an assertion he cannot prove in his laboratory; he can justify it only after the manner of the philosopher. The principal source of naturalism lies in this disposition of scientists, not infrequently men of weight, to assume the rôle of philosophers, and to carry with them into the forum of philosophy the traditions and hypotheses with which they are already familiar.

There is a less evident, though scarcely less important, source of naturalism in the popularization of science. When science is diffused, and transmuted into the form of common sense, it is almost invariably merged with philosophy. As a rule it is not substituted for theories emanating from philosophical sources, but is held along with them. Common sense has no nice regard for the spheres of the several branches of knowledge, and no repugnance whatsoever to contradictions. The mechanical and the spiritual theories of man, or the hypothesis of cosmic evolution and of divine creation, are accepted in the same sense and accorded equal weight; the one being learned from popular science, and the other from the pulpit. There is, furthermore, as we shall presently see, a peculiar readiness on the part of the vulgar mind to fall in with the naturalistic view of things, and to regard it as prior to all other views. For the naturalistic view is, in a certain respect, the same as the 'practical' view, and has a source in organic habit independently of the diffusion of science.

§ 2. Since naturalism is but science in the rôle of philosophy, it has during the last century shared the unusual prestige which science has acquired. Science has come to stir the imagination of

The Prestige
of Science

men to a degree that is unparalleled. This is due, in part, to the fact that every member of a civilized community uses the results of science, and credits science with them. Science is credited, and justly credited, with the enormous increase of convenience, comfort, and efficiency, which human life has in the last century enjoyed. Transportation, manufacturing, hygiene, every activity employing physical means, has been revolutionized. And this fact is brought home to every man in his daily occupations. The telephone with which he orders his supplies, the trolley-car or automobile which he takes to his place of business, the elevator with which he rises swiftly to the top of a towering structure of steel — these, and a hundred like items, testify perpetually to the glory of science.

Even more impressive to the popular mind than the applications of science, are its discoveries and inventions — its perpetual novelties. Here is an enterprise whose steady advance can be measured. Knowledge is added to knowledge; and every increment opens new prospects of increase. The miracles of yesterday are the commonplaces of today. Science thus commands attention; it stirs the blood; it even makes news!

But there is a deeper reason for the appeal of science to the popular mind. The recent advancement of science has fulfilled the Baconian prophecy, of power through knowledge. Nature has lost its terrors. It has submitted to the yoke of human interests, and been transformed from wilderness into civilization. The brilliancy of scientific achievement has given man a sense of proprietorship in this world; it has transformed the motive of life from bare preservation to conquest. And so frequently has science overcome the accepted limitations of practical achievement, and disclosed possibilities previously unsuspected, that man now greets the future with a new and unbounded hopefulness. Indeed this faith in the power of life to establish and magnify itself through the progressive mastery of its environment, is the most significant religious

idea of modern times. And through its relation to this idea science has been justly exalted. ✓

There is a further explanation of the prestige of science, and of naturalism as well, in the distinction and popularity of scientific writers. The philosophical utterances of Spencer, Darwin, Huxley, Tyndall, Du Bois-Reymond, Lord Kelvin, Ostwald, Haeckel, Arrhenius and others, have obtained a publicity only very rarely enjoyed by the recognized leaders of philosophy proper. The same difference obtains between the lesser scientists and the lesser philosophers. And this is not due to the accident of individual genius, style, or manner. For the popular mind, scientific ideas have an immediate intelligibility and a *prima facie* probability, which philosophical ideas have not. If we can explain this fact we shall have advanced far in the direction of a clearer understanding of what science is.

§ 3. There is a distinction made by logicians between the *denotation* and the *connotation* of terms. A term is said

The Agreement
between Science
and Common
Sense

to 'denote' certain concrete individuals, and to 'connote' certain properties. Thus the term 'planet' denotes Neptune, Jupiter, etc., and connotes the property or relation of 'satellite to the sun.' The instances of a term constitute its denotation; the meaning or definition of a term, its connotation. Now it is a significant fact that *the denotation of scientific terms is peculiarly clear or unambiguous to common sense*. The instances of science are readily identified; one knows what the scientist is talking about. We can follow his eye to the natural locality which he is observing, or take into our hands the natural body with which he is experimenting. When the philosopher, on the other hand, discourses on the true, the beautiful, and the good, we do not know where to turn. If his face were to assume a rapt expression, and we were sentimentally or mystically inclined, we should feel moved or exalted. For we take such things in good part when seers and poets utter them. Or were his eye to twinkle, we should laugh with him —

and feel relieved. But ordinarily the philosopher looks as secular and literal as any scientist; and in proportion to the hardness of our hearts, we are contemptuous or embarrassed. The scientist alone seems to suit the word to the mood of serious discourse. There is evidently a tacit understanding between him and common sense which, in the case of the philosopher, is wholly lacking. Science speaks in the native tongue of common sense, philosophy in unfamiliar accents that shock and mystify.

The explanation of this lies in the fact that science and common sense agree in unconsciously accepting a classification or map of experience which it is the business of philosophy consciously to criticise. This map or classification is sometimes referred to as 'the natural world-order.' In this order, a thing is a body, and the world is the spacial field and temporal sequence of bodily events. The instance, case, example, which a word denotes, is always some individual body or group of bodies — occurring somewhere, at some time, and capable of being identified beyond doubt by gesture or manipulation. To think in these terms is the habit of common sense, and the method of science.

The strength of this habit is illustrated by the efforts of the mind to deal with things the corporeal character of which is expressly denied. An almost irresistible propensity inclines the imagination to regard God, spirit though he be, as having a place in the heavens, whither at death the soul may resort. The soul itself, by definition the antithesis of body, is nevertheless commonly imagined as a diaphanous or subtle body-within-a-body, moving with the mortal body before death, and independently of it after death. Similarly, the attempt at clear demonstration almost invariably impels one to the use of spacial diagrams. And the spacial figure is so interwoven in ordinary speech as to be well-nigh ineradicable. A great difference is a 'wide' difference, the better is the 'superior' or 'higher,' the reliable is the 'solid,' and the distinct the 'tangible.'

This habit of thought and speech is not accidental on

the part of common sense, nor reprehensible on the part of science. For it is the primary function of the human mind to discriminate and relate bodies. This function is first in order of practical importance. The human mind, like the heart and lungs, is an organ, calculated to assist the adaptation of one body to an environment of other bodies. This function with reference to other bodies is not only the mind's original function, but remains, during a man's natural lifetime, its most indispensable function. "*Our intelligence, as it leaves the hands of nature,*" says Bergson, "*has for its chief object the unorganized solid.*" When we pass in review the intellectual functions, we see that the intellect is never quite at its ease, never entirely at home, except when it is working upon inert matter, more particularly among solids . . . where our action finds its fulcrum, and our industry its tools " ¹ Intelligence is first of all the attentive discrimination of bodies, and a responsiveness to their proximity, motion, or change of property. And when life becomes less preoccupied with its own preservation and more largely engaged in constructive enterprises, it is on its control of its bodily environment that it mainly relies both for security and for power. Science elaborates and perfects this form of intelligence. Through science it becomes methodical and exact. The use of speech and record makes it an institution supported and utilized by society as a whole, its specialization and expansion beyond the demands of present exigencies renders it a means of resourcefulness and initiative.

Common sense and science (the one unconsciously, the other with an increasing degree of consciousness) thus move within the same limits. They share the same unreflective classification of experience, employ the same axes of reference, have the same notion of an individual thing. This is thought's original sin, its inertia and line of least resistance. It is responsible for the sympathy between common sense and science; and for the somewhat strained

¹ *Creative Evolution*, trans by A. Mitchell, pp. 153-154, ix

relations between both of these and philosophy, whose business it has ever been to remind them that their favorite assumption is uncritical and dogmatic.

§ 4. We must now attempt a more careful account of that common sense notion of a thing, which is the subject-matter to which science addresses itself, and of Bodies which its terms denote. I have as yet but roughly indicated it by the terms 'body' and 'physical event.' It is not to be expected that either common sense or science should analyze this notion. They analyze one body into lesser bodies, visible bodies into invisible bodies; they distinguish and classify bodies; but they do not attempt to enumerate the generic bodily properties. This is a philosophical task which we must undertake for ourselves.

In describing the unambiguous denotation of the terms of science, I have alluded to gesture and manipulation as means of identification. A body can always be pointed to, or one can 'lay one's hand on it.' Eliminating the accidental human reference, this means that a body has locality, or spacial position.¹ It is *somewhere*. But when we say 'it is somewhere,' we indicate that the body does not consist of the position alone. There is something which is *at* the position, or bears to the position the relation of 'occupancy.'¹ Again, it is essential to bodies that they have a history, and thus occupy time as well as space. They are somewhere at some time. The relation of that which occupies space and time, to its spacial and temporal positions, may be either of two kinds. The spacial position may remain the same while the temporal position varies, in which case we speak of a body's being at *rest*, or the spacial position may vary continuously as the time varies continuously, in which case we speak of *motion*.² Finally, except in the hypothetical case of material points, bodies

¹ The best account of the relation of space, time, body, and motion is to be found in B. Russell's writings. Cf. "Is Position in Time and Space Absolute or Relative?" *Mind*, N.S., Vol. X, 1901, and *Principles of Mathematics*, Ch. LI, LIII, LIV.

² For the meaning of 'continuous,' cf. Russell, *op. cit.*, Ch. XXIII.

always occupy several positions simultaneously, and accordingly possess spacial extension and figure.

There is a certain convenience in so distinguishing 'body' and 'matter' as to use the term 'body' to mean the distinct individuals of the genus 'matter.' A body is ordinarily regarded as that which moves as a unit, as whatever portion of matter may maintain the mutual positions of its parts unchanged, while their relations to other positions are changed. It is this capacity of an extended unit to be dislocated from its context, which is ordinarily regarded as defining its boundaries. And its identity would then be regarded as unaltered so long as this independence of internal on external relations continued. It is not evident, however, that the possibility of motion is necessary for the definition of an individual body. It is strictly necessary only that a region of space should be marked by some distinguishing character that remains unchanged through time. Matter, or physical being, on the other hand, would mean any complex containing something occupying both space and time. *That which occupies space and time* is indifferent, it is the space-time occupancy that constitutes its material or physical character.¹ Matter is commonly used also in a narrower but not incompatible sense, to exclude the strictly spacial and temporal properties. In this sense, matter would mean only whatever occupies the space and time, and not the whole complex.

Summarily expressed, then, we may say that 'physical' (bodily or material) connotes two sets of properties: spacial and temporal properties on the one hand; and, on the other hand, space-time-filling properties.² The former are such as latitude and longitude, shape, date, and motion; the latter such as color, temperature, and sound. The

¹ It will, I think, be generally agreed that neither 'hardness' nor even 'impenetrability' is regarded by modern science as an essential property of matter. Cf. Sir Oliver Lodge *Life and Matter*, pp. 24-34.

² I do not mention the more general logical, arithmetical and algebraic properties, such as 'order,' 'number,' etc., because these are not *distinctly* physical. See below, pp. 108-109, 310-311.

former may be said to be the fundamental physical properties, because the latter derive their physical character from their relation to the former. It follows that physical events — the immediate subject-matter of physical science, are of two general types. There is, first, the change of spacial-temporal properties; and second, the change of space-time-filling properties: in short, change of place, and change of state. These events it is the task of science to explain.

§ 5. In what sense does science seek to 'explain'? Explanation is supposed to supply an answer to the question "Why?" But this interrogative pronoun suggests several questions which, in the course of the development of science, have proved irrelevant to its special interest. For many minds, and, during a considerable period, even for the scientific mind, the demand for explanation has been satisfied by the reference of an event to a power, regarded as sufficient to produce it. Thus before Galileo's time, terrestrial motions were accounted for by attributing them to powers of "gravity" and "levity" And similarly Kepler explained planetary motions by attributing them to celestial spirits.¹ It seemed necessary to provide an agency having a capacity for effort as great as, or greater than, the effect, and immediately present to the effect, as the soul is present to the body it moves. But Galileo and Kepler have contributed to the advancement of science only because they have added to such explanation as this, an exact account of the process or form of terrestrial and planetary motions. Just how *do* bodies fall and planets move? This is the question which for scientific purposes must be answered; and *only such answers have been incorporated into the growing body of scientific knowledge*. Who or what moves bodies, in the sense of agency or potency, is for scientific purposes a negligible question; attempts to answer it have been, in the course of the development of science, not disproved, but disregarded.

¹ Whewell *History of the Inductive Sciences*, third edition, Vol. I, p. 315

And the same is true of another sense of the interrogative 'why.' It is not infrequently taken to mean, "To what end?" "For what good?" Thus, we are said to 'understand' the *beneficent* works of nature, but to 'see no reason' for vermin, disease, and crime. Or, if we do seek a reason, we find it in some indirect beneficence that may be attributed to these things, despite appearances. This is the teleological or moral type of explanation. It appears in the ancient regard for 'perfect' numbers and forms, in the Platonic principle of the Good, and in the Christian notion of Providence. But this species of explanation, too, has been not disproved, but progressively disregarded by science. It has come to be the recognized aim of science to formulate what happens, whether for better or for worse, leaving out of account, as an extra-scientific concern, whatever bearing it may have on interest ¹

It appears, in other words, that the common distinction between explanation and 'mere description' will not strictly hold in the case of scientific procedure. For science, to explain is to describe — provided only that the description satisfies certain conditions ²

§ 6. There are two specific conditions which description must fulfil, if it is to be sufficient in the scientific sense. In the first place, scientific description must reveal the general and constant features of its subject-matter. It is a truism that thought tends to unify. The bare *quale* of phenomena, their peculiar individuality, gives way to certain underlying identities. Or, since natural science deals primarily with changes, bare novelty gives way to an underlying permanence. In other words, scientific thought is interested in what is the same, despite difference, or in what persists, despite change. ³

Conditions of
Scientific De-
scription

¹ For this purely *theoretical* motive in science, cf. above, pp. 25-28

² Cf. E. Mach "The Economical Nature of Physical Inquiry" in his *Popular Scientific Lectures*, trans. by T. J. McCormack, p. 186

³ As we shall presently see, this does not mean that science forces identity and permanence upon an alien chaos or flux, but only that science is interested in laying bare what identity and permanence is there

Furthermore, science is interested in relating the difference to the identity, and the change to the permanence; showing, so far as possible, that the former is a determinate variation of the latter.

And this brings us to the second condition which scientific description must fulfil. It must be *analytical* or *exact* in its final form. This does not mean imposing such a form upon nature arbitrarily. Bodies, as we have seen, are primarily spacial and temporal, and both space and time possess what is called 'extensive' magnitude, such as 'number,' 'length,' 'breadth,' 'volume,' 'interval,' etc. Furthermore, the space-time-filling properties of bodies have a form of magnitude called 'intensive' magnitude, such as 'intensity of light,' 'degree of temperature,' etc. Changes of magnitude, whether extensive or intensive, can be *exactly* described only in mathematical terms. And underlying the strictly quantitative characters of bodies are certain more abstract characters, such as 'relation,' 'order,' 'continuity,' an exact description of which leads likewise to a mathematical or logical formulation. Where such descriptions have been obtained, as in the case of physics, we speak of 'exact science.' And such science serves as the model of scientific procedure in general.

Scientific description, then, is governed by two motives, on the one hand, unity, parsimony, or simplicity, the reduction of variety and change to as few terms as possible; and, on the other hand, exact formulation. When a scientific description satisfying these conditions is experimentally verified, it is said to be a law. And it is certain that nothing more is required for purposes of scientific explanation than the discovery of the law. Whether this is a sign of the degeneracy of science, or of its logical refinement, it will be our task presently to inquire.¹ But we shall be better prepared to raise this question, and we shall better understand what has gone before, if we now turn to a brief examination of certain samples of scientific

¹ See below, pp 93-100.

procedure. The philosophical interpretation of science turns not so much upon special scientific laws, as upon the general character common to all scientific laws. And this character is most evident in the case of certain mechanical laws, which are at the same time relatively simple and relatively fundamental. I shall therefore attempt to show briefly what is meant by 'acceleration,' 'mass,' 'gravitation,' and 'energy,' in relation to the empirical facts which they are intended to describe.

§ 7. It has been said that modern science came "down from heaven to earth along the inclined plane of Galileo."¹ Galileo's importance lies not only in his specific contributions to mechanics, but in the example of

his method — the analytical description of motion. In order to understand the concept of *acceleration*, which Galileo employed for the description of a body's fall to the earth, let us begin with the simpler concepts which it implies. Motion, as we have seen, means a continuous change of place through a period (also continuous) of time. In other words, a body is said to move when a certain constant space-time-filling property is correlated with a continuously varying distance (d), measured from the point of origin, and a continuously varying period (t), measured from the moment of origin. The scientist, seeking to discover constancy even where it does not at first appear, and to relate the constancy to the variability, is led to conceive of a *constant proportion among these variables*. It may be, e.g., that whereas d and t change, the fraction d/t remains the same. In other words, whereas the distance and the time vary severally, it may be that the ratio, 'velocity' (v), is uniform. This does not

¹ Bergson *Creative Evolution*, trans by A. Mitchell, p. 335. The best account of Galileo's services to science is to be found in Mach's *Science of Mechanics* (translated by T. J. McCormack). This book, W. Ostwald's *Natural Philosophy*, trans by T. Seltzer, and K. Pearson's *Grammar of Science*, may be consulted for a more detailed statement of scientific concepts.

happen to be the case with freely falling bodies. Experiment shows that even v varies. But the same procedure enabled Galileo to define a more complex ratio, v/t , or the rate of increase of velocity; and this ratio, called 'acceleration,' Galileo's experiments showed to be a constant. In other words, $v/t = g$, where g is the so-called constant of 'gravity,' that is, of acceleration at a given place on the earth's surface.

Now in this elementary mechanical conception of uniform acceleration, appear all the most essential principles of exact science. It is a *description* of motion, because it simply records the behavior of the falling body, and does not seek further to account for or justify it. It is an *analytical* description, because it expresses motion as a relation of the terms, such as d , t , etc., into which it can be analyzed. It is an exact description, because the terms and relations are mathematically formulated. And it is a *simplification* and *unification* of phenomena, because it has discovered a constancy or identity underlying bare differences. As we proceed to more complex concepts we shall not, I think, meet with any new principles of method as fundamental as these.

§ 8 Galileo's constant of acceleration describes bodies falling to the *earth at a given place*. The earth is taken as a unique individual, and the difference between terrestrial and celestial motions is left unrelieved.

The Conception
of Mass

But is it not possible to regard the earth as a special case of some more general concept? Galileo regarded acceleration as the evidence of 'force'. The fact that bodies moving in relation to the earth are accelerated to it in a fixed measure, can be expressed by saying that the earth exerts a fixed force upon other bodies. But why should not other bodies also, in different but determinable degrees, exert force, that is, induce accelerations in their neighbors? In other words, why should force not be regarded as a general property of bodies, and g , or the acceleration referred to the earth, as only a special value of this property? It would then follow that the falling body would exert 'force

on, or induce acceleration in, the earth; and that the earth would sustain like relations with other celestial bodies. There would then be a quantity possessed by every body, which would be the ratio of the acceleration it induced in another body to the acceleration which the other induced in it. Thus bodies Q^1 and Q^2 being accelerated towards one another, there would be a ratio,

$$\frac{\text{acceleration of } Q^2 \text{ to } Q^1}{\text{acceleration of } Q^1 \text{ to } Q^2}$$

This is the *mass* of Q^1 relatively to Q^2 as a standard, and so far as the motions of Q^1 as a unit are concerned, it is a constant

Mass, in other words, is the fixed ratio of acceleration which a body possesses in relation to each other body or to some standard body. In the Newtonian mechanics this generalization of Galileo's conception is finally extended to the determination of the actual accelerations of any two bodies, in terms of their masses (m, m'), their distance (r), and a fixed number (c), the so-called constant of gravitation. The formula for gravitation is thus expressed,

$$f = c \frac{mm'}{r^2}$$

By the aid of the principle of the parallelogram of forces, which makes it possible to analyze the present orbits of the stars into component rectilinear motions, this formula brings celestial as well as terrestrial motions into one system, in which every body or configuration of bodies possesses an amount of motion exactly calculable in terms of the balance of the system. And this system means no more than the most simple and exact description of bodily motions that is verified by the facts of observation.

§ 9 But as yet we have dealt only with those concepts and formulas which describe the motions of bodies. What of the change of the space-time-filling properties, such as heat, light, etc? Is there any underlying identity or permanence that relates such

The Conserva-
tion of Energy

changes to motion and to one another? The answer of science is found in the conception of the conservation of energy.¹

This principle is derived historically from the Newtonian formula $ps = \frac{1}{2}mv^2$; where ps , the product of force (p), and distance (s), is the symbol for 'work,' and $\frac{1}{2}mv^2$, a function of mass (m) and velocity (v), is the symbol for *vis viva*, afterwards 'kinetic energy.' A body held at a certain distance from the earth's surface will, if allowed to fall, acquire a certain kinetic energy ($\frac{1}{2}mv^2$), proportional to the distance and the force exerted by the earth (ps). In that the falling body will acquire this kinetic energy by virtue of being simply *allowed* to fall, it is said to possess 'potential energy' (P) in its initial position. As the body falls, this potential energy decreases and is proportionally replaced by kinetic energy. Suppose the body to be suspended by a string, and to swing from a horizontal position. Then, when it has fallen as far as the string permits, it will ascend again to the same height above the earth's surface. In other words, having first lost potential energy to the extent of its vertical fall, and gained kinetic energy in its place, it will now reverse the process, and lose kinetic energy while it gains potential energy. In other words, $\frac{1}{2}mv^2 + P = c$; that is, the sum of its kinetic and its potential energies is constant, or its energy is *conserved*.

But now suppose that the string is cut, and the body allowed to fall freely. When it strikes the earth it possesses a quantity of kinetic energy sufficient under the right conditions to enable it to recover its original potential energy. In this case, however, no such reverse motion takes place; there is, supposing the bodies to be inelastic, simply an apparent disappearance of motion, accompanied by an increase of heat. Now the real fruitfulness of the principle of energy lies in the possibility of regarding this

¹ For this conception, consult Mach "On the Principle of the Conservation of Energy," *Popular Scientific Lectures*, p 137.

increase of heat as analogous to the regaining of its original potential energy¹ If the analogy held this would mean that in the new system the sum of kinetic energy and heat would be a constant; or that the amount of heat replacing the lost kinetic energy would in turn yield the same amount of kinetic energy. And experiment has proved this to be the case Similarly, it has been discovered that kinetic energy can be reciprocally and conservatively converted into light, electricity, etc

When thus expressed, energy, like mass, is a ratio It means that, despite the appearance of bare disjunction when motion gives place to heat, or heat to light, etc., there is a certain permanence of relations The amount of motion, heat, light, etc., is the same *in a certain specific respect*; in the respect, namely, that when one is converted into another, the sum of the two remains the same, and the amount of the second is such as to be again convertible into the same amount of the first This may be expressed otherwise by saying that when such a qualitative change takes place, that which is apparently lost is in a certain sense conserved, in that it exists potentially in the new quality Thus energy, like acceleration, mass, and the rest, is a constant relationship or proportion of variable terms. And as in the case of the other concepts, so here also, the terms are functions of space and time, or of properties that occupy them, and the relationship or proportion is exact and mathematical.

§ 10 Such is the meaning of certain typical scientific concepts, or descriptive formulas, so far as can be gathered from a direct examination of them in relation to the subject-matter which they are intended to describe There is a question which I am sure will occur to many readers as proper

The Analytical
Version of
Scientific Concepts

¹ It is not necessary to suppose that heat, electricity, etc., are mechanical, in the strict sense, i.e., constituted of internal motions "Nothing is contained in the expression," says Mach, "but the fact of an invariable quantitative connexion between mechanical and other kinds of phenomena." Cf. *Principles of Mechanics*, p. 499

and necessary to raise; the question, namely "What really is mass or energy?" Upon the legitimacy of this question turns the issue between naïve and critical naturalism, with which we shall be occupied in the next chapter. The question is evidently meant to convey the idea that mass and energy cannot be *merely* ratios or formulas — that they must be *things*, in some more reputable sense. But if such be the case, at any rate it does not appear in the exact records of science. There may be an antecedent play of the imagination or a speculative after-thought, in which mass is a simple substance and energy a simple activity. But as exactly formulated, and experimentally verified, mass and energy are mathematical relationships. And if this analytical version of scientific concepts will suffice in the case of the simpler concepts, there is no reason why it should not suffice also in the case of the more complex concepts

When motion is described it turns out to be a definite relation to space and time, of something which occupies them jointly. Such an account of motion is not imposed upon it by any subjective predilection for a relational technique. It is empirically characteristic of a moving body to be now here, now there, and for every intermediate instant to occupy an intermediate point. The calculus of motion is merely the most faithful account of it which the mind has been able to render. The same is true of the more complex thing called velocity. It is the ratio of the distance factor and the time factor in the case of a moving body. When we pass from velocity to acceleration, mass, gravitation, and even to energy, we are simply observing and recording more complicated aspects of a moving or otherwise changing body. The analytical version of these concepts corresponds to the specific complexity on which observation has seized. The supposition that there must be a *real* mass or energy other than the analytical complex, betrays the influence of words¹. Because 'mass' is one word like

¹ This supposition is also due in part to a projection of the feeling of effort into bodies which act as efficient causes. Cf. below, p. 70

'blue,' it is felt that it must be one indivisible thing like blue. But it would be as reasonable to say that motion is an indivisible thing because the word 'motion' is single; whereas it is evident that motion contains *both* space and time, and is therefore complex. I am led to conclude, therefore, that all of these concepts are essentially ratios or relational complexes of the simple terms of experience, such as space, time, color, sound, etc.; and that each of these ratios or relational complexes expresses some specific complexity or configuration, which is found in nature. And I judge that these concepts illustrate the motive of science, which is simply to describe and record, with special reference to their unity and constancy, the actual changes of bodies.

CHAPTER IV

NAÏVE AND CRITICAL NATURALISM

§ 1. NATURALISM, as we have seen, is not science, but an assertion about science. More specifically, it is the assertion that scientific knowledge is final, leaving no room for extra-scientific or philosophical knowledge. Naturalism assumes two forms. On the one hand there is a variety of naturalism which adopts the traditional problems, and to a large extent the traditional methods, of philosophy. It continues, e.g., the philosophical search for a universal substance and a first cause, and claims to have discovered these in some such scientific concept as 'matter' or 'force.' The second variety of naturalism repudiates not only the solutions of the traditional philosophy, but the problems and methods as well. It condemns the search for universal substance and first cause as futile. Its last word is a 'theory of knowledge,' in which science is asserted to be final because the only case of exact knowledge. In other words, the second variety of naturalism claims less for the concepts of a science, but nevertheless claims all. Science is not the only knowledge that has been dreamed of, but it is the only knowledge that is possible. The first variety of naturalism is metaphysical, the second proclaims its 'anti-metaphysical' character. Or the first may be called 'materialism,' and the second 'positivism.'

The crucial difference between these two forms of naturalism is to be found, I think, in what they make of scientific concepts. The first construes matter, mass, energy, and the rest, as simple substances or powers. Owing to its failure to analyze these concepts, owing to its uncritical assumption that whatever has a single name must be

an indivisible thing, I propose to call this '*naïve naturalism*.' The second variety, on the other hand, accepts the analytical version of scientific concepts, as set forth in the last chapter, and hence may be called '*critical naturalism*.'

Naïve naturalism, metaphysical naturalism, or materialism, derives its form from philosophy — and its defects as well. Indeed it affords the best example available of the *characteristic* defects of philosophy, of those errors to which philosophy is perpetually and peculiarly liable owing to the motives which rule it. We shall, therefore, be aided both in the exposition and in the criticism of naïve naturalism, if we have certain of these errors clearly in mind.

§ 2 In the first place, there is an error to which I propose to give the name of 'the speculative dogma.'¹ By this I mean the arbitrary assertion of the ideal of thought. What that ideal is, when verbally formulated, may be inferred from our review of the procedure of science. The concepts of science satisfy thought's peculiar bias for identity and permanence. Thought seeks so far as possible to construe particulars as modes of the general, to construe what is apparently unique as a special instance of something that is common. It seeks also to account for *as much as possible* of any individual phenomenon, in terms of such a general concept. It seeks concepts, in short, that shall be both *general*, and also *sufficient* or adequate, to the things subsumed under them. Now philosophy has especially to do with ultimates and finalities. So the philosophical form of this general propensity of thought gives rise to the ideal of a concept that shall be of *unlimited generality and sufficiency*. The concepts of acceleration and mass make possible the systematization of the motion-properties of bodies. By virtue of these concepts each body is regarded as a function of all other bodies; and these concepts may thus be said to possess a

¹ For a more thorough examination of this error, see below, Ch VIII, *passim*.

Three Characteristic Philosophical Errors
'The Speculative Dogma'

high degree of generality. But because they leave the space-time-filling properties out of the account, they lack sufficiency; that is, they do not measure up to the concrete variety of an individual body's properties. They account for something of all bodies, but not for all of any body. The concept of energy, on the other hand, makes a body's motion-properties commensurable with its heat, light, sound, etc.; and thus makes the formulas of science more sufficient, that is, more exhaustive of an individual body's variety of properties. Hence it appears possible to define a maximum in both directions, a concept that shall lack nothing either in generality or sufficiency — that shall provide for everything, and for all of everything.

Such a concept is the speculative ideal. Were it formulated and verified it would mark the consummation of thought. And it is characteristic of philosophy to assume such a concept, without being rigorously critical concerning either its definition or its proof. With many philosophers, perhaps with the majority of philosophers, it is simply a question of finding a content or a complete formulation for this concept, its validity as an abstract ideal being taken for granted. Philosophy is then only an attempt to find the value of x ,¹ where x is that something of which everything is a case, and in terms of which every aspect and alteration of everything may be expressed. And speculation has given rise to an uninterrupted line of attempted solutions, from Thales's "all things are made of water," down to the present-day "monisms" of force and energy. It is the uncritical assumption that this speculative ideal is valid — that such a concept is necessary, leaving only its precise nature to be determined — that I have named 'the speculative dogma.'

§ 3. A second traditional philosophical error may conveniently be named the 'error of pseudo-simplicity.'¹ It consists in the failure to recognize the difference between the simplicity that precedes analysis, and the simplicity

¹ For this and the following error, cf. also below, pp. 261-264, 279-283.

that is revealed by analysis; between the apparent simplicity of an unanalyzed complex, and the real simplicity of the ultimate terms of analysis, or between 'Pseudo-simplicity' and the simplicity that is owing to the little that 'Indefinite Potentiality' one knows, and that which is owing to the much that one knows

Thought begins with an undifferentiated *that*, roughly denoted by a word or gesture. The object is as yet barely distinguished. It is an undivided unity because some single character, such, for example, as its position in space or time, or a relation to some more familiar thing, has served, to identify it for the purpose of discourse and investigation. But when the investigation is made, a variety of characters is discovered, and if the investigation is carried far enough, certain ultimate characters are arrived at, which will no longer yield to analysis. The object is then exhibited as a complex of simple properties, having a certain arrangement or relational unity. Meanwhile the original unity, of name, gesture, or denotative reference, hovers reminiscently in the background of the mind, and unless it is understood and discounted, it serves to discredit analysis. It endows the object with an undivided unity which contradicts the results of analysis. It construes the object as simply "that," whereas analysis construes it as many terms in relation. It is eventually converted into the well-known notion of 'substance' or 'essence,' and as such plays the rôle of a superior reality which analysis can never reach.

The fallacy is evident when once it is noted that this undifferentiated unity is subjective and not objective. It is the *knowledge* of the thing, which is simple, and not the thing itself. It is not the thing, but the mind of the knower, that is empty of diversity. And if it is not possible to reach this simplicity by carrying analysis *on*, it is always possible to reach it by reversing the process and returning to the initial state of innocence.

Intimately connected with this error is a third, which may be named 'the error of indefinite potentiality.' A

substance or essence, construed as above, is supposed to have some necessary relation to the characters which analysis yields, and which are called its attributes. But the substance or essence as contrasted with its attributes is no more than a name, a gesture, or some one of its attributes, arbitrarily singled out for the purpose of identification. And between the essence or substance, and the cluster of its attributes, no direct relation of necessary connection is to be found. Thus one does not have a concept of an indivisible essence 'gold,' and then see that it implies 'yellowness,' 'malleability,' a certain specific gravity, etc. The relation remains arbitrary. Gold is regarded as the potentiality of these things, but there is no evidence that it is the potentiality of *just* these things, or of these things exclusively. It is an indefinite and indeterminate potentiality, a 'that which,' with the sequel unaccounted for

How gold, simply, should reveal itself successively as 'yellow,' 'malleable,' etc., really becomes clear only when psychological terms are introduced. An organism experiencing the real complex may begin with the name, or the position, or with some associate, and *pass on to the rest*, finally overlapping the full detail. In this case the detail is not generated by the original simplicity itself, but, pre-existing in the thing from the start, is gradually uncovered, or brought into consciousness. And this is a very different matter. For now while there is a transition *in consciousness* from simplicity to complexity, the thing itself has been complex all the while. Indeed the subjective simplicity owes its potentialities to the objective complexity.

These three errors have perpetually played into one another, and have begotten certain well-nigh inveterate habits in philosophical thought. The 'Absolute' or 'Ultimate,' or 'Infinite' has become a commonplace. It is already plausible and men are at once ready to entertain the idea, because of the common supposition that every individual thing has an inward indivisible essence which

is its 'real' nature, as opposed to its diversity as revealed by analysis. It is an easy step from such particular essences to a universal essence. And the notion of an all-general, all-sufficient entity, that shall be all properties to all things, is readily entertained by a mind that is accustomed to the notion of indeterminate and unlimited potentialities. Such are the modes of thought characteristic of a 'metaphysics' that is unfaithful to the method of analysis.

§ 4. Naive naturalism regards 'matter,' 'force,' or 'energy' as the universal substance. Such a view is naturalistic, in that it attributes finality and universality to these concepts of physical science, and naive, in that it puts a substantial rather than an analytical interpretation on them.

Naive Naturalism
ism Buchner's
Monism of
Matter ✓

During the latter half of the nineteenth century the most influential materialist was Louis Buchner,¹ whose *Kraft und Stoff* has passed through twenty German and eight French editions. This book expressed a reaction against idealistic metaphysics caused by the rapid advance of the natural sciences.² The author attributes the false philosophy of the past to the abstract separation of matter and force. The former abstracted from the latter—a matter with no internal attraction and repulsion, "a being without properties," is nothing at all ("ein Unding"). The form and movement of matter constitute "its necessary attributes, and *sine qua non*." On the other hand, force means nothing "without the modifications and movements that we perceive in matter." The absurd notion of a disembodied force is chiefly responsible for the spiritistic and creationist theories which have distinguished loose speculation from true science. "Keine Kraft ohne Stoff, — kein Stoff ohne Kraft!" The balance of the chemist proves that matter is "immortal," as the determination of the mechanical equivalent of

¹ 1824-1899 The first edition of the *Kraft und Stoff* appeared in 1855.

² Cf. *op. cit.*, Conclusion.

heat by Mayer and Joule establishes the "immortality" of force ¹

In other words, matter manifests itself in force, and force in turn manifests itself in various determinate and measurable changes such as motion and heat. Matter itself is *that which* thus manifests itself. "This 'something' is what we call matter, the phenomena in question are its activities, and the cause of these activities is the force contained in the substance" What matter is *in itself* we cannot know. Hence we must not judge matter *merely by what is known of it* / Indeed since its essence escapes us, there is nothing of which it can be judged incapable. Science is constantly finding it to possess unexpected properties. As a potentiality without assignable limits, it may be as reasonably endowed with "intellectual" force as with "physical" force; and no man can foresee what further powers it may in the future reveal ²

Now it is evident that such a 'monism of matter' necessarily employs the notion of substance — the notion of an essence distinguished from its properties, and not defined by them. Since matter is not identified with specific properties, it is an indefinite potentiality; and were it not so, its universality or metaphysical reality could not be asserted. In short everything can be claimed for matter, just in proportion as matter is not identified with anything in particular. It is the pressure of the speculative dogma, the assumption that there must be *some* conception having unlimited generality and sufficiency, that leads the party of matter to present their favorite conception in this rôle; and to assume this rôle, matter must be divested of the specific and determinate character which is assigned to it in the limited operations of science.

§ 5 Now it happens that 'matter' is too well-known in its private capacity to play becomingly the part of Univer-

¹ *Op cit*, from the French translation, by Victor Dave, of the seventeenth edition, pp 3, 46, cf Ch II, III, *passim*

² *Op cit* pp 43, 45, 46

sal Being. Common sense has a comparatively clear image connected with the term. It invariably suggests spacial discreteness and juxtaposition, a tri-dimensional aggregate of units of volume bounded by hard surfaces. And if this be matter, then evidently matter is not everything. So characteristic an arrangement suggests contrasts as well as analogies; if it provides for some things, like the planetary system or the molecular structure of gases, it leaves out other things, such as color, thought, or the ether. Hence the superiority of concepts like 'force' and 'energy.' For these have not only the specific meaning which they obtain from the formulas of mechanics; they have also the vague meaning which they have when construed in terms of the inner experience of activity or effort. Common sense recoils from the notion of a matter that shall not be hard, discrete, and extended; but it is prepared to hear anything of force or energy

And there is a second motive which tends to the substitution of these conceptions for matter. The indestructibility of matter is proved by the fact that matter changes its form without loss of weight. Empirically, in other words, it is the property of weight that remains constant. But weight is a manifestation of force, and matter may therefore be regarded as one of these manifestations. Or one may argue, as the philosophers Leibniz and Berkeley have argued long since, that matter is known only by its properties, by its "forms and motions", and if these are varieties of force, why multiply substrata or essences needlessly? Instead of conceiving a matter that manifests itself in forms and motions, why not stop at force, and invest it with finality and universality?

So the 'monism of force' replaces 'the monism of matter.' "As shown before," says Spencer, "we can not go on merging derivative truths in those wider truths from which they are derived, without reaching at least a widest truth which can be merged in no other, or derived from no other. And

the relation in which it stands to the truths of science in general, shows that this truth transcending demonstration is the Persistence of Force. . . . But when we ask what this energy is, there is no answer save that it is the noumenal cause implied by the phenomenal effect. Hence the force of which we assert persistence is that Absolute Force we are obliged to postulate as the necessary correlate of the force we are conscious of. By the Persistence of Force, we really mean the persistence of some Cause which transcends our knowledge and conception. In asserting it we assert an Unconditioned Reality without beginning or end."¹

The use of capitals in this paragraph is an expedient for ridding terms of that precision of meaning which is so fatal to the speculative interest. By 'force' one can only mean the p or f of the formulas of mechanics; but by 'Force' one can mean this together with anything else that it may prove convenient to mean. The former is one thing among others; the latter may be equal to anything and everything. We are "obliged to postulate" it, to satisfy the speculative dogma; and we are enabled to satisfy that dogma, only by reducing a determinate concept to a name, and then construing its very emptiness as signifying unlimited potentiality.

The monism of force, as has been said, derives a certain plausibility from the experience of activity or effort. It is significant that it is the *vagueness* of this experience that renders it useful in this connection. Were it a specific experience, like, e g, that of the color blue, it would not so readily lend itself to unlimited generalization. As a matter of fact, the experience of activity may be construed in one of two ways: it may be taken in its initial or passing character as a fused experience, or it may be analyzed.² In the first case, it possesses simplicity just in proportion as it is not an experience of anything, it signifies, not the sim-

¹ Spencer (1820-1903) *First Principles* (1862), sixth edition, pp. 175-176

² Cf. below pp. 261-264, 279-283

plicity of the thing, but of the knowledge. It is, in short, a case of 'pseudo-simplicity.' In the second case, that is, when analyzed, it turns out to be a composite experience, containing specific elements in a specific configuration. Now activity in the latter sense is far too peculiar and rare to be construed as an all-general and all-sufficient principle. But activity in the former sense is indeterminate; and since the experience is familiar, it gives currency to a similarly indeterminate conception of force, which is amorphous and plastic enough to suit the speculative purpose. It is readily accepted as the principle which underlies and unites both the analyzed and determinate 'force' of physics, and the analyzed and determinate 'activity' of a strictly descriptive psychology.

§ 6 The monisms of matter and force are restated, brought up to date, and subsumed under a higher

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| Haeckel's Monism of Substance | "monism of substance," by Ernst Haeckel. This author's <i>Riddle of the Universe</i> is at present both the most widely read and influential defence of <u>materialism</u> , and also the most perfect illustration of that doctrine's characteristic motive and besetting sins. |
|-------------------------------------|--|

~"Under the name of 'the law of substance,'" Haeckel embraces "two supreme laws of different origin and age — the older is the chemical law of the 'conservation of matter,' and the younger is the physical law of the 'conservation of energy.'" "The sum of matter which fills infinite space," and "the sum of force, which is at work in infinite space and produces all phenomena," are alike unchangeable. And just as all energies — heat, sound, light, electricity, and the rest, are only particular varieties of one universal energy, "dynamodes of a single primitive force," so the different forms of matter — chemically diverse, ponderable and imponderable, are only particular "condensations" of a "simple primitive substance, which fills the infinity of space in an unbroken continuity." But monism is not yet complete. "Matter (space-filling substance) and

energy (moving force) are but two inseparable attributes" of a still more fundamental substance. And in this substance the dualism of body and mind is resolved as well. For energy and spirit are one. Spirit is at once the essence and the activity of substance; physical affinity and resistance are but rudimentary forms of inclination and aversion ("The irresistible passion that draws Edward to the sympathetic Otilia, or Paris to Helen, and leaps over all bounds of reason and morality, is the same powerful 'unconscious' attractive force which impels the living spermatozoon to force an entrance into the ovum in the fertilization of the egg of the animal or plant — the same impetuous movement which unites two atoms of hydrogen to one atom of oxygen for the formation of a molecule of water") Thus Haeckel arrives at the animism and hylozoism with which human thought had set out some 2500 years before, the notion of an indeterminate matter, informed and animated by an indeterminate force — a cosmic generalization, in other words, of the immediate feeling of desire and self-motion. And even this is not the last substance, for it is but "the knowable aspect of things," and is relative to our senses. "We are incompetent to penetrate into the innermost nature of this real world — 'the thing in itself'"¹

Thus the 'principle of substance' in the end conducts Haeckel, as it conducted Buchner and Spencer, to agnosticism. And his procedure is in all essential respects the same as theirs. He consistently assumes that a simple unity corresponding to the name or initial aspect, must underlie every analyzed and relational unity. For every correlation of elements, there must be a 'that which' possesses them. And this assumption is applied to the central concepts of physics. Weight, mass, force, and energy,

¹ Haeckel *The Riddle of the Universe*, trans by J McCabe, pp 211-213, 216, 218, 224, 292. The best reply to Haeckel is to be found in Sir Oliver Lodge, *Life and Matter*. Cf also Fr Paulsen *Philosophia Militans*, p. 121, "Ernst Haeckel als Philosoph."

are properly, as we have seen, *constant ratios of variables*: mathematical proportions of the spacial, temporal, and qualitative properties of things, as these are directly observed. But with Haeckel, every such relational complex is regarded as expressing some simple essence or unique quality. Thus the Newtonian mechanics, he says, gives us only the "*dead mathematical formula*" the "*quantitative demonstration*" of the theory of force; "*it gives us no insight whatever into the qualitative nature of the phenomena*"¹ In other words, Haeckel is not satisfied with the qualitative diversity represented by the several terms into which a Newtonian formula may be analyzed. There must be a deeper and more essential quality corresponding to the formula itself. But such a quality is neither to be observed nor discovered by analysis. It is *assumed*; and once assumed, it is given a vague meaning either by reference to the subjective experience of effort, or by the lingering and confused reminiscence of its exact mechanical meaning.

And it is the latter of these means on which this doctrine depends for its materialistic or anti-spiritualistic conclusions. If the qualitative essence of force and energy were interpreted in terms of psychical activity or appetency, the outcome would be a '*panpsychism*,'² in which it would be as reasonable to reduce mechanism to freedom as freedom to mechanism, or as reasonable to reduce matter to God as God to matter. Precisely this conclusion is reached by those who, like Bergson, approach the primeval activity-substance from the philosophical and psychological side.³ But Haeckel's monism "definitely rules out the three central dogmas of metaphysics — God, freedom, and immortality"⁴ And that such appears to be the outcome is due entirely to the remnant of definite physical meaning that still attaches to 'force' and 'energy' in Haeckel's use of them. The underlying substance, or primitive

¹ *Op cit*, p. 217

² See below, pp. 261-262

³ Cf. below, p. 315.

⁴ *Op cit*, p. 232

force, cannot be identified with any of its observed and described manifestations; and yet it is reached by passing through and beyond these. It is these manifestations so qualified as to annul their specific characters, but without destroying the suggestive power of their names. Precisely as, in the mystical theology, God's attributes transcend wisdom and goodness in their human significance, and yet retain the specific associations of these terms, and so endow God with a vague meaning, so here the primitive force, the fundamental substance, is endowed with the narrower physical meaning of terms despite the fact that that meaning strictly construed forbids the assertion of their universality. The errors of pseudo-simplicity and indefinite potentiality are meretriciously relieved of their real barrenness by the further error of 'verbal suggestion.'¹

✓ § 7 Critical naturalism differs from naïve naturalism or materialism by its acceptance of what we have called 'the analytical version' of scientific concepts. This Critical Naturalism involves the rejection, on empirical grounds, of the traditional notion of substance. The term 'substance' may be retained; but if so, it is employed in a new sense, to mean a quantitative and not a qualitative constant. Thus, according to Ostwald, for example, the law of the conservation of energy expresses "the quantitative conservation of a thing, which may nevertheless undergo the most varied qualitative changes" "With the knowledge of this fact," he continues, "we involuntarily combine the notion that it is the 'same' thing that passes through all these transformations, and that it only changes its outward form without being changed in its essence" But such ideas "have a very doubtful side to them, since they correspond to no distinct concept." Experience affords no idea of such a qualitative essence, but only of a complex ratio that remains unchanged while its factors vary.²

In other words, a strictly empirical version of science

¹ Cf below, pp 180-183.

² W Ostwald *Natural Philosophy*, trans by T. Seltzer, pp. 130-132

reduces nature to a qualitative variety and change, exhibiting quantitative constancy. In order that such a version of science shall yield a naturalistic philosophy, it is necessary to show that nature so construed coincides with knowable reality. This conclusion may be arrived at in one or both of two ways. It may be argued that the ultimate qualitative terms of experience are somehow physical, or at any rate such as to permit of being explained only in terms of physical theories; or it may be argued that physical theories are the only verifiable, and so the only valid, theories. In other words, the priority of physical science may be argued from the nature of fact or from the nature of method. The former of these motives is represented by 'sensationalism,' and the latter by "experimentalism." Sensationalism and experimentalism are ordinarily united, but owing to a characteristic difference of emphasis, Karl Pearson serves to illustrate the former, and Henri Poincaré the latter.

§ 8 / It is Pearson's central contention that the truths of science are conceptions and inferences *formed from sense-impressions*. The external object, which "at first sight appears a very simple object," turns out to be a "construct" of sensible properties, "a combination of immediate with past or stored sense-impressions." So that the field of science is "the contents of the mind." The sense-impressions constitute the only subject-matter of thought, the only reality that is directly given. The mind is shut up to sense-impressions, as a hypothetical operator, who has never been outside a central telephone exchange, is shut up to the messages received at the inner end of the wire. "Turn the problem round and ponder over it as we may, beyond the sense-impression, beyond the brain terminals of the sensory nerves, we cannot get." "The 'reality,' as the metaphysicians wish to call it, at the other end of the nerve, remains unknown, and is unknowable."¹

¹ Karl Pearson *Grammar of Science*, second edition, pp 39, 41, 75, 61, 63, 67

These sense-impressions it is the business of science to "classify and analyze, associate, and construct." The "law of nature" is "a *résumé* in mental shorthand, which replaces for us a lengthy description of the sequences among our sense-impressions." "The object served by the discovery of such laws is the economy of thought." They "enable the exertion, best calculated to preserve the race and give pleasure to the individual, to follow on the sense-impression with the least expenditure of time and of intellectual energy". A scientific concept such, for example, as the 'atom', is either "real, that is, capable of being a direct sense-impression, or else it is ideal, that is, a purely mental conception by aid of which we are enabled to formulate natural laws". There is no ground for the assertion of an existence that is both "supersensuous" and also "real"¹

Pearson thus apparently accepts the analysis of physical substances and forces into *non-physical* terms. And yet he finds this view to afford sufficient ground for claiming the universal and exclusive validity of natural science and according metaphysics the doubtful honor of being ranked with poetry². Now upon further examination it appears that this conclusion is due to the fact that "sense-impressions" are not after all the ultimate terms of analysis, but *are themselves*, in Pearson's sense, *physical "constructs"*. In regarding them as the ultimate terms of analysis, Pearson is virtually *assuming* the priority of the physical order. The sense-impression is a derivative of the whole naturalistic scheme, and means nothing apart from that scheme. "What we term the sense-impression" is conveyed by a sensory nerve, and is "formed at the brain." "A physical impress is the source of our stored sense-impression." The sameness of the external world depends on "the similarity in the organs of sense and in the perceptive faculty of all normal human beings", and the consciousness of others is inferred from "physiological machinery of a

¹ *Ibid*, pp. 66, 86, 78, 67, 96.

² *Ibid*, Ch I, *passim*.

certain character, which we sum up under brain and nerves." The "sequences of sense-impressions," "the routine of our perceptions," are not only functions of physiological nerve-stimulation, but may be conceived to have evolved as aids in "the struggle for existence."¹ It is perfectly evident, in short, that sense-impressions, in their structure and given order, presuppose the whole physical system. The real question is not how we can get "beyond the brain terminal," but how we ever came to be shut up to it. And the answer is, that in Pearson's philosophy we assume a physiological relativism, and the whole physical world-order in terms of which such a relativism is defined

§ 9 Much light is thrown on the dogmatic character of Pearson's naturalism by the modified position of Ernst Mach. According to this author, the physical order is essentially a relationship sustained by more primitive elements "A color is a physical object so long as we consider its dependence upon its luminous source, upon other colors, upon heat, upon space, and so forth. Regarding, however, its dependence upon the retina (the elements $KLM \dots$), it becomes a psychological object, a sensation." The bare color is neither physical nor psychical. A bullet, for example, turns yellow before a sodium lamp, red before a lithium lamp. Such a type of relationship may be represented by the symbols $A B C$. But if we close the eyes or cut the optic nerve, the bullet disappears. So the bullet is also a function of a peculiar complex, the nervous system, represented by the symbols KLM "To this extent, and to this extent *only*, do we call $A B C \dots$ *sensations*, and regard $A B C$ as belonging to the ego." In other words, $A B C \dots$ are psychical only in so far as they belong to the specific system $A B C \dots KLM \dots$. And similarly, volitions, memory-images and the like, represented by the symbols $\alpha \beta \gamma \dots$, owe their distinctive character to the arrangement in which they are united. "The fundamental

The Modified
Position of
Ernst Mach

¹ *Ibid* pp 42, 63, 57, 86, 99, 103

constituents of $A B C \dots \alpha \beta \gamma \dots$ would seem to be *the same* (colors, sounds, spaces, times, motor sensations . . .), and only the character of their connexion different." In other words, not only "thing, body, matter," but also "perceptions, ideas, volition, and emotion, in short the whole inner and outer world, are composed of a small number of homogeneous elements connected in relations of varying evanescence or permanence."¹

Now it is evidently improper to designate these elements themselves as "sensations," since a sensation is but one of the complex arrangements in which they appear. "Usually," says Mach, "these elements are called sensations. But as vestiges of a one-sided theory inhere in that term, we prefer to speak simply of *elements* (elementen)." He continues, it is true, to speak of bodies as "complexes of sensations," or definite connexions of "the sensory elements," and is thus in a measure responsible for the misunderstanding on which Pearson's sensationalism is based.² But it is evident that Mach's view can only mean a reduction of both the physical and the mental order to a manifold of neutral elements; that is, elements which are neither physical nor mental. Nor can it be said of these elements that they are inherently disposed to those particular relationships and arrangements in which they compose bodies or physical events The orders of logic and mathematics, of mind and of conduct, stand upon the same footing as those of mechanical nature. So the analytical method inevitably leads beyond naturalism to a 'logical realism,' that is as independent of physics as it is of psychology.³

§ 10. Thus critical naturalism, while it is successful in its polemic against every metaphysics of substance, fails thus far to establish *itself*. Its critical motive triumphs at the expense of its naturalistic motive There remains, however, another

¹ E. Mach *Analysis of Sensations*, trans by C. M. Williams, pp. 13-14, 17-18, 6, 18.

² *Ibid.* pp. 18, 192.

³ Cf. below, pp. 310-311, 315-316.

ground on which its claims may be urged. Even though analysis may show that the primitive realities are not physical, it may yet be argued that the physical *hypothesis* is the only verifiable hypothesis, and that the truths of physical science are the only well-authenticated truths. In other words, naturalism may be argued, not on ground of fact, but on ground of method. Thus, for example, Pearson himself asserts that "the unity of all science consists alone in its method, not in its material," and that if any fields lie beyond science, they "must lie outside any intelligible definition which can be given of the word *knowledge*."¹

The most notable contemporary representative of methodological naturalism or experimentalism, is Henri Poincaré. This writer's view is best comprehended in the light of its relation to the radical view of another contemporary French thinker, Edouard LeRoy. The latter, adopting the extreme 'anti-intellectualistic' position, insists upon the entire artificiality or conventionality of science, both in respect of its facts and its laws. Science is an invention for the purpose of action; and cannot, therefore, be regarded as a revelation of reality. It follows that action is prior to nature; and that action, since to define is to reconstruct and falsify, can be known only by instinct or intuition.² It is evident that such a conclusion is not naturalistic, and Poincaré, in the interests of naturalism, properly undertakes to criticise it. If naturalism is to be maintained, facts cannot be regarded as wholly indeterminate, for that would imply the deriving of physical nature wholly from subjective activity. It would then follow that will is prior to body, and teleology to mechanism. It is necessary, therefore, to reserve for facts *just enough determinateness to require the physical hypothesis and method*

¹ *Op cit*, pp 12, 15

² See E. LeRoy "Science et Philosophie," *Revue de Métaphysique et de Morale*, vol VII, 1899, pp 375 sq. Cf Poincaré *The Value of Science*, trans by G. B. Halsted, pp. 112-114. For a discussion of 'anti-intellectualism,' see below, Ch X

for their explanation. And this is the position which Poincaré adopts. The "crude facts" are such as verify only physical hypotheses, they lend themselves only to the method of experiment. Thus our author concludes that "experiment is the sole source of truth. It alone can teach us anything new, it alone can give us certainty."¹

Now it appears upon reflection that Poincaré's "crude fact," like Pearson's "sensation," is by no means simple; and that it predetermines the physical hypothesis, or the method of experiment, only because it is already itself invested with a physical character. In other words, Poincaré's analysis, like that of Pearson, is not complete. He believes that such is the case, when he reduces external bodies, like the ether, e g , to persistent relations. "It may be said, for instance, that the ether is no less real than any external body, to say this body exists is to say that there is between the color of this body, its taste, its smell, an intimate bond, solid and persistent; to say the ether exists is to say there is a natural kinship between all the optical phenomena, and neither of the two propositions has less value than the other"² But he overlooks the fact that the correlation of qualities with spaces and time, is *itself* a *specific case* of more primitive relationships. This specific case, which is already physical, he simply *assumes* to be universal. Were he to follow analysis to the end, he would find that his "crude facts" presuppose certain simpler "groupings" and "kinships" that are not the subject-matter of physical experimentation at all, but of logic and mathematics.

The unique validity of the experimental method depends on an exclusive regard for the *kind* of fact for which this method is available. Experimentalism, like sensationism, involves a vicious circle. A certain type of method is accredited by its applicability to a certain type of fact; and this type of fact, in turn, is accredited by its lending

¹ Poincaré *Science and Hypothesis*, p. 101

² *The Value of Science*, pp. 139-140.

itself to a certain type of method. For the facts to which experiment or scientific verification can be applied, are limited to what is observable *in a place, at a time*. An hypothesis is tried by an 'observation', but an observation is 'taken' at a designated time and place, and it serves as a test only so far as the space-time orientation is exact. For example, the hypothesis on which the prediction of an eclipse is based, is verified when it appears dark at a specific instant, to an observer stationed at a specific place. The appearance of darkness, not otherwise determined, would verify nothing; nor would it ever suggest a mechanical hypothesis to the mind of a scientist. Science arises as a formulation of experiences that may be non-mechanical in content, but they must be *had* within a field in which the mechanical axes of reference are already presupposed. ✓ An equally good illustration is afforded by another of Poincaré's examples "I observe the deviation of a galvanometer by the aid of a movable mirror which projects a luminous image or spot on a divided scale. The crude fact is this: I see the spot displace itself on the scale, and the scientific fact is this: a current passes in the circuit."¹ A complete account of the "crude fact" would specify not only that the spot shall appear on the scale, that is, at a determined place, but at a determined instant as well; in other words, it must not be too crude to be lacking in specific spacial and temporal relations to other "crude facts." Thus Poincaré's facts are already virtually mechanical, in that they verify only such hypotheses as contain space-time variables and determine space-time events.

The Failure of Critical Naturalism The Priority of Logic and Mathematics § 11 Poincaré's position is an impossible compromise. Either the facts of nature are entirely indeterminate, as LeRoy maintains; in which case the whole scheme of physical nature is improvised by man in the interests of action. Or they are determinate, in which case they are already

¹ *Op cit*, pp 116-117

endowed with a complex physical character, which presupposes certain simpler logical and mathematical characters. In the latter case, the categories of logic, mathematics, and physics are all alike factual and independent of the constructive activity of science. "All the scientist creates in a fact," says Poincaré, "is the language in which he enunciates it"¹ Then either science is all a matter of language, in which case it is deducible from the practical exigencies of discourse, as LeRoy would maintain; or we must limit "language" to the function of words and symbols. But logic and mathematics must then be distinguished from discourse, and regarded as themselves sciences of fact. For the truths of logic and mathematics are independent of the conventions employed to express them. We shall then be led to conclude that physical hypotheses as descriptive of physical facts, employ and presuppose logical and mathematical hypotheses, which in turn are descriptions of logical and mathematical facts. Logic and mathematics describe the nature of 'relation,' 'order,' 'dimensionality,' 'number,' and 'space'; physics studies particular cases of these. The concepts of physics are special values of the variables of logic and mathematics; the hypotheses of physics are alternatives supplied by the more abstract principles of logic and mathematics. It follows that there is no sense in which physics can be regarded as the fundamental science, nor is there any sense in which the facts which are determined by physical hypotheses can be regarded as ultimate facts. And this conclusion is fatal to naturalism. It gives to being, *in the last analysis*, a logical, rather than a physical, character; and reduces the experimental method of physics to the position of being a special instance of logical method.

Thus a critical philosophy of science carries one beyond physical science to simpler non-physical terms, and provides for non-physical methods and non-physical theories with which to formulate these terms. 'Color,' 'sound,'

¹ *Op cit.*, p. 121

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'position,' 'order,' 'magnitude,' 'implication,' none of these, nor any such relatively simple term of experience, is physical; and the truths concerning these things are far richer and more various than such as can be ascertained by physical experimentation, or described by physical theories, alone. Whatever testifies to the truth of physics testifies to the wider and more basal truths of logic and mathematics. Hence Descartes's astonishment, "that foundations so strong and solid should have no loftier superstructure reared on them."

CHAPTER V

RELIGION AND THE LIMITS OF SCIENCE

§ 1. NATURALISM, or the claim that physical science is unqualifiedly and exclusively true, is equivalent to the denial of optimistic religion. If all being is bodily, and all causality mechanical, then there can be no support for the belief that the cosmos at large is dominated by goodness. Life is impotent; and the aspirations and hopes to which it gives rise are vain. Enlightenment destroys what the heart so fondly builds. Man is engaged in a losing fight. He may "develop a worthy civilization, capable of maintaining and constantly improving itself," but only "until the evolution of our globe shall have entered so far upon its downward course that the cosmic process resumes its sway, and, once more, the State of Nature prevails over the surface from our planet" ¹

When in the course of the last century science became so militant as to pretend to the empire of human knowledge, religion was compelled in self-defence to challenge its title. And once roused to arms, religion not unnaturally sought to carry the war into the enemy's territory. The result was to establish a habit of suspicion and hostility between the party of science and the party of religion. They became hereditary enemies.² There are already signs of (the dawn of a new era; perhaps the time is not distant when the lion and the lamb shall lie down together. But at present it is still generally assumed that the success of religion is conditioned by the failure of science. The major part of contemporary religious philosophy is devoted to a disproof of science. If there is to be "room

¹ Huxley *Evolution and Ethics*, p. 45.

² See above, pp. 34-38

for faith," that room must be gained at the expense of science. When a scientist confesses failure, as when Du Bois-Reymond pronounces his "ignorabimus" concerning the relation between matter and consciousness, he is charged with treason by the partisans of science, but is eagerly quoted and followed by those of religion.¹

Now it must be admitted that religion's instinctive distrust of science has a basis in reason. It is true, as we shall presently see, that nothing could be more fatuous than the hostility of religion to science. For both are human institutions, and whether a man be a scientist or a theologian, he *needs both*. Nevertheless, religion of the optimistic type, the belief that civilization dominates and eventually possesses the cosmic process, cannot survive, if the scientific version of things be accepted without reservations. Faith can be justified only provided limits be assigned to science. And religion will be wise to avoid any reconciliation in which it is made dependent on the indulgence of science.

There is some disposition at present to invest religious capital in scientific novelties. Science now employs concepts that seem less forbidding than its classic atomism. May not energy, or the electrically charged ether, or radio-activity, turn out to be the essence of God, or of man's immortal soul? There are two reasons for distrusting such suggestions. In the first place, they derive whatever religious meaning they possess from a loose and anthropomorphic version of science, and not from its rigorous formulation. In order that these scientific concepts shall serve as hints of a 'spirit' in nature, they must be construed as substances and invested with characters drawn from the confused feeling of effort.² Religion will indeed

¹ E. Du Bois-Reymond *Über die Grenzen des Naturerkennens*, an address at the Scientific Congress at Leipzig, 1872, cf ninth edition, p 51. For the sequel, cf Haeckel *Riddle of the Universe*, p 180 sq., Fr Paulsen: *Introduction to Philosophy*, trans by F Thilly, p. 77, James. *Human Immortality*, p 21, etc.

² See above, pp 71-72.

be reduced to extremities when it is dependent on the vagaries of the scientific imagination.

In the second place, even though such scientific concepts were converted into spiritual substances, they would still yield no profit to religion. Hylozoism, or even panpsychism, as a theory of the ultimate matter, is for religious purposes no better than atomism, and no worse. Religion is indifferent to the question of substance. For religion is made of hope and fear; it is a solicitude for certain values. Its justification requires that the cosmos, whatever it be made of, shall in the end yield to desires and ideals — shall in short, be good. And this requirement the new science satisfies no better than the old. For science does not deal with value, but with the *quantitative constancies exhibited in natural processes*. Whether these processes take place for better or for worse, it does not inquire.¹ The explanation by ends, the reference of events to purposes, it seeks to dispense with altogether. A philosophy of religion must itself add the judgment of value. If faith is to be justified, it must be shown that *the good determines* events and is not a mere phosphorescent glimmer on their surface.² Science does not deny any such conclusions, but neither will science be led to any such conclusion — for the reason that its subject-matter and its methods do not permit. The intensive cultivation of science has led, and will always lead, to the rejection of religious hypotheses as irrelevant. In terms of its 'facts,' and its experimental technique, such hypotheses are unwarranted and unverifiable.

The philosophical justification of optimistic religion involves, then, a critique of science; not a refutation of science, but a delimitation of science — a proof that science, strictly construed, is *not all*. The critique of science thus constitutes the religious sequel to science; and we shall pass in review the several contentions upon which such a critique is at present based.

§ 2. Before dealing with the criticisms of science that are

¹ Cf. above, pp. 25-28.

² Cf. below, pp. 341-342

peculiarly characteristic of contemporary philosophy, I desire briefly to allude to a method of criticism that was once Naturalism and common, but is now obsolescent. I refer to the Supernaturalism argument for miracles. A miracle is a breach of scientific law, that is, the failure of a scientific law to obtain within its proper field. Thus a motion that did not obey the laws of motion would be a miracle, as would a Euclidean triangle that did not conform to the theorems of Euclidean geometry. But the notion of a miracle in this sense reflects an antiquated conception of natural law. When laws were thought of as divorced from their subject-matter, and imposed upon it from without, it was possible to think of their being obeyed or disobeyed without ceasing to 'hold.'¹ But scientific laws are now understood to be descriptions of their subject-matter. And there can be no such thing as a breach of the law, in this sense. For if things do not behave as the law stipulates, it follows that the law is incorrect. Were a Euclidean triangle found whose interior angles were not equal to 180°, it would be necessary to retract the corresponding theorem; and were there empirical evidence of a word's converting water into wine, it would be necessary to amend the laws of chemistry to meet the case. For when an event falls under the terms of the law, it constitutes one of the data which the law purports to describe, and which it must describe if it is to be a law at all.

The disputes between science and religion in the age that has just passed have turned largely upon this issue. The successive defeats of religion have been due to the fact that its defenders have put it in a false position. The validity of religion has been made to turn upon the failure of science within its own field. And naturally enough, the apologists of religion have, within that field, been no match for their scientific opponents. The Copernican hypothesis of the motion of the earth, the nebular hypothesis of its origin, and the geological hypothesis of its age and history,

¹ Cf. K. Pearson's *Grammar of Science*, Ch. III, *passim*.

were arrived at by regarding the earth as a natural body like other natural bodies. Religion, starting from the unique place of the earth in the historical drama of salvation, was led to assert its uniqueness in other respects also. There resulted the ambiguous and untenable position of acknowledging the earth's bodily character, and at the same time declining to apply to it the conclusions of those who, without ulterior motive, and with the maximum of skill and information, devoted themselves to the study of bodies.

The same thing happened in the case of man. His bodily functions come within the range of statics, hydrodynamics, aerodynamics, and chemistry, while as an animal organism, he belongs to the subject-matter of biology and physiological psychology. And similarly the Scriptures, as historical documents, must necessarily be submitted to the methods of historical, archæological, and philological research. The apologists of religion made the mistake of disputing the findings of these several sciences, and undertook an unequal contest with experts in their own fields of study. The result was inevitable. Science, because free from ulterior motives, and superior in technique, prevailed; and religion, regarded as an ineffectual protest against advancing enlightenment, lost prestige.¹

§ 3. It is characteristic of the contemporary critique of science to accept science as a whole. The philosophy of religion no longer attempts to meet science on its own grounds, and to dispute questions of detail that lie within its province. It is admitted that, relatively to its method and subject-matter, the verdict of science is final and unimpeachable. Science must be dealt with as a system which is complete in its own terms. The difference between science and religion no longer turns upon questions of fact, but upon a fundamental question of point of view or method.

¹ Cf Andrew D. White's *A History of the Warfare of Science with Theology in Christendom*, *passim*.

Religion must accept, once for all, "the concatenation of phenomena"; and abandon the "self-contradictory religious supernaturalism" that "attempts self-satisfaction by transfiguring a fragment torn from the temporal series of history." Religion and true philosophy do not abide here but in the "eternal"¹ We must concede the scientist's claim of the universal ramification of "causal connections"; but the hope of deliverance lies in the immediate qualification—"so far as the scientific interest is concerned." For the scientist forgets "that all this causal explanation has no meaning whatsoever, and his statements no truth, and his universe no reality, if he and we are not presupposing an idealistic belief in those absolute standards of eternal values by which we can discriminate the true and untrue, the good and the bad, the real and the unreal."² "The deepest and most thorough reconciliation of Science and Religion which it is possible to conceive," says another philosopher, "puts an end in principle to the unworthy bickerings between them about the territories of each, and the futile attempts at the delimitation of their borders," permitting "each to claim the *whole* of experience — *in its own fashion*" "Science may justly deal with all things . . . so may Religion." But there is a deeper ground for both, since "both are means of transmuting the crude 'matter' of 'appearance' into forms better, truer, more beautiful and more real"³

Thus it may be said that the religio-philosophical critique of science has on the whole abandoned the old supernaturalistic ground. In other words, it no longer attempts to make exceptions, and to dispute the rule of natural law in specific localities of nature The integrity of science is acknowledged, and whatever criticism is urged against science is urged against it as a system.

¹ R M Wenley *Modern Thought and the Crisis in Belief*, pp 78, 229, 228

² H. Münsterberg *Science and Idealism*, p 70 (italics mine)

³ F C S Schiller *Riddles of the Sphinx*, third edition, pp. 463-464 (last italics mine)

§ 4. But the old warfare between science and religion has not wholly ceased. There is a lingering spirit of hostility that still stands in the way of mutual sympathy and understanding. It appears on the side of science, in the 'anti-metaphysical' polemics of such writers as Pearson, and in the irreverent animus of such writers as Haeckel. On the side of religious philosophy it appears in a disposition to disparage science, to belittle its achievements, and exploit its failures and shortcomings. ✓

This disposition pervades what is perhaps the most monumental critique of science that has recently appeared in the English language — James Ward's *Naturalism and Agnosticism*. While this book aims to refute naturalism rather than science, the author nevertheless repeatedly argues from the incomplete success of science.¹ He points out the "lacunæ" of science, such as the gap between the organic and the inorganic realms. He reminds us, in other words, that there are scientific problems that the scientist has not yet solved! He suggests contradictions within the body of scientific truth; and dwells upon the uncertainty of scientific hypotheses that are not as yet completely verified. As if all human knowledge did not, at any historical moment, have its residual ignorance, its outstanding difficulties, its transitive phrases, and its haunting doubts! Indeed, the frankness with which science has avowed these limitations — these penalties of human frailty, and risks of human temerity — merits confidence and not distrust.

Professor Ward finds evidence of the unreliability of science above all in the fact that its theories must perpetually submit to correction. He quotes Boltzmann: "Today the battle of opinion rages tempestuously . . . What

¹ The reader may be interested in referring to the replies of J. E. Creighton, and of Professor Ward himself, to this criticism. Cf. *Journal of Phil., Psych., and Scientific Methods*, Vol. I (1904), Nos. 10, 12. The present writer's rejoinder, from which parts of the present text are drawn, appeared in the same *Journal*, Vol. I, No. 13.

will the outcome be? . . . Will mechanical models in any case persist, or will new, non-mechanical models prove better adapted, and the component factors of energy control absolutely the domain? . . . Is it possible that the conviction will ever arise that certain representations are *per se* exempt from displacement by simpler and more comprehensive ones, that they are *true*? Or is it perhaps the best conception of the future to imagine something of which one has absolutely no conception?" And the author concludes a criticism of Principal Rucker with the comment, "after all, then, he is only defending a working hypothesis, and one, moreover, that has lost greatly in prestige in the last half century"¹

Now the folly of such arguments lies in the fact that they can be urged with equal force against any human pretension. It amounts, all of it, to no more than the hoary commonplace that mortal mind is fallible. Any assertion whatsoever may prove to be mistaken, even Professor Ward's criticisms, and the "Spiritual Monism" of his own adoption. This fact of human fallibility, since it may be urged against all knowledge, cannot be urged against any. It justifies a certain modesty and open-mindedness in thinkers, but can never constitute ground for the rejection of any particular theory. Knowledge can be disproved only by better knowledge. If a specific scientific theory is doubtful, well and good, but it can justly be regarded as doubtful only for scientific reasons, and these had best be left to the scientist himself. It is scarcely necessary to add, that if variety and change of opinion are to be urged against any branch of knowledge, the philosopher of religion can least afford to urge them. For of all cognitive enterprises his is on this score the most in need of indulgence.

Where the general fallibility of human knowledge is urged against a special branch of knowledge, it betrays an over-eager and blind partisanship. An apologist for

¹ *Naturalism and Agnosticism*, second edition, Vol. I, pp 307, 314.

religious orthodoxy writes as follows: "Men of science may be right or wrong in their deductions from the fragmentary information possessed by them. Generally they are wrong, as is clearly enough shown by the fact that a large part of the work of each generation of men of science consists in overturning or modifying the theories of their predecessors." Hence "the utter futility of setting up the deductions of the human reason against the assertions of the Word of God"¹ To such ideas as these Professor Ward virtually gives countenance. But how reactionary, and how fatuous! Science and religion are both institutions which serve man. A religious believer, since he is a man, needs science; as a scientist needs religion. Hence a philosopher of religion who seeks to discredit science, injures himself. He abets a domestic quarrel. There can be no victories for science that do not promote man and all his works, including religion; nor any defeat of science that is not a common disaster. For science and religion are the supporting wings of one army engaged in the conquest of ignorance and death.

§ 5 The criticisms of science to which I shall now invite attention avoid in the main both the obsolete policy of interfering in the affairs of science and the obsolescent animus of partisan strife. Science is to be acknowledged as unimpeachable when it acts within its proper sphere; and is admitted to friendly alliance with philosophy and religion. But it is held to be inherently lacking in self-sufficiency and finality. It *presupposes* something else; and that which it presupposes is more fundamental, or more 'real,' and confers priority on philosophy and religion

I shall first consider what may be regarded as the methodological critique of science.² According to this

¹ P. Mauro "Life in the Word," published in a series of pamphlets issued in defence of Christian orthodoxy, and entitled *The Fundamentals*, Vol. V, p. 47

² This critique is intimately connected with the pragmatist's attack upon "intellectualism," and will receive further treatment in Chapter X.

The Disparagement of the Descriptive Method

critique the concepts of science are 'mere' descriptions, and the laws of science hypothetical or 'contingent.' Science, although systematic and complete in its own terms, cannot, owing to the nature of its method, yield reality. Its findings are true only in the limited sense of being convenient. They are not necessary, but only expedient. Like conventions, with which they may be classed, they are not inevitable, but optional and arbitrary.

It is significant that this critique of science is based upon the acceptance of what I have called 'the analytical version' of scientific concepts.¹ It urges against science the very refinement and exactness of its method. That which in the judgment of critical naturalism commends science, and justifies its exclusive claim to the title of knowledge, is here regarded as a deficiency

James Ward, again, will serve as an illustration. This author traces with admirable lucidity the development which such conceptions as 'matter,' 'mass,' 'force,' and 'energy' have undergone in the history of science. He finds that these terms now connote factors in the exact calculations and formulas of science, and are no longer charged with the vague ontological predicates of common sense. So far the author's exposition is unexceptionable and instructive. But somehow at the same time that science has been growing more exact, it has lost its hold upon reality. "To distinguish them from the old school, whom we may fairly term physical realists, we might call the new school physical symbolists. . . The one believes that it is getting nearer to the ultimate reality, and leaving mere appearances behind it: the other believes that it is only substituting a generalized descriptive scheme that is intellectually manageable, for the complexity of concrete facts which altogether overtask our comprehension." To this symbolistic version of modern science, Professor Ward subscribes. He quotes

But it is by no means peculiar to pragmatism; it is, in fact, employed by the great majority of contemporary opponents of naturalism

¹ Cf. above, pp 60-62

approvingly Karl Pearson's characterization of scientific laws as "conceptual shorthand." Or as he himself expresses it, "the conception of mechanism enables us to summarize details that would otherwise bewilder us," but "this cannot possibly nullify our independence." "Such conceptions may furnish an admirable descriptive scheme of 'the motions that occur in nature,' but they explain nothing." "In short, one may take it as definitely conceded by the physicists themselves that descriptive hypothesis takes the place of real theory."¹

But what can this disparagement of description possibly mean? Is it possible to mention any motive of thought more completely governed by the nature of its subject-matter than the motive of description? Description means the reporting of things as they are found The gradual substitution, in the procedure of Science, of description for 'explanation,' means simply that science has grown more rigorously empirical. 'Explanation,' as contrasted with description, suggests a reference to trans-experiential powers, and mysterious essences, or a one-sided version of things in terms of human interests.² Science has abandoned explanation in this sense, because such attempts diverted the attention from its proper subject-matter, and engaged it in irrelevant speculation. If we are to believe some of the critics of science, description is a sort of game, and the adoption of this method a sort of senile playfulness that has overtaken science in its degeneracy. It happens, however, that this descriptive period of science is the period of its most brilliant successes. And science is of all branches of human knowledge the one in which caprice is most fatal. ✓ For science is engaged at close quarters, dealing as it does with the proximate environment, its findings are promptly verified, or discredited, its day of judgment is always near at hand. It is impossible that science should have succeeded,

¹ James Ward *op cit*, Vol. I, pp 304-305, 83, Vol II, pp 251, 88-89,
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² See above, pp 53, 54.

save by a scrupulous fidelity to fact. This is what the descriptive method properly signifies. It is a discriminating disregard of the irrelevant, and a single-minded renunciation of ulterior motives.

And yet Professor Ward would have us believe that description is somehow arbitrary, that it does not necessarily reflect the nature of things. "To suppose," he says, "that the rigorous determinism deducible from the abstract scheme — for the simple reason that it has been put into its fundamental premises — *must* apply also to the real world it has been devised to describe, is just as absurd as — to take a very trivial illustration — it would be to say that a man must fit his coat, and not that the coat must fit the man"¹ As though a coat could be *fitted* to a man without the man's fitting the coat, or a scheme be "devised to describe," the real world without "applying" to it!

§ 6. But what, it may be objected, are we to make of the formal criteria of the descriptive method, such, e g., as simplicity? Is this not, after all, an aesthetic or subjective criterion, a matter of convenience, rather than a revelation of reality? Professor Ward can quote scientists, in their capacity as exponents of naturalism, in support of such a view. But does *science* justify such a view?

In the first place, it is necessary to distinguish within the system of science itself, between written symbols or signs, and the concepts, ratios, and laws to which they refer. There is evidently a difference between the Greek letter π , or the mark $\sqrt{}$, and *what these signs mean.* Signs are conventions, arbitrarily chosen and agreed on, and their abbreviation of complexity is a matter of convenience. But this does not in the least affect the status of the things which the signs mean. Because the signs which I use in the equation, $2+2=4$, are arabic, lower font, etc., I am not justified in concluding that the numerical equality expressed is similarly contingent on the choice of language and type.

¹ *Op cit*, Vol. II, pp. 67-68

Yet this confusion, obvious as it is, has played no small part in the notion that descriptive analysis is artificial and unreal.¹

If it be admitted that the formulas of scientific description express definite logical and mathematical relationships, whose meaning and truth is independent of the exigencies of discourse, it may yet be contended that the application of these relationships to nature is arbitrary. I can only reply that just these relations are found to subsist in nature, if they were not, the scientist would not account them verified. If it be objected that nature never *exactly* corresponds to such formula, I may then ask for specific cases. And when the disparity between the case and the formula is pointed out, some new and similar formula will be at the same time exhibited.²

But, it may be asked, does not the formula always leave something out; does it not, for the sake of practical convenience, always over-simplify nature? Of course it leaves something out. In empirical procedure, it is as important to omit the irrelevant as to include that which is germane. And it is further true, as has been stated above,³ that science is peculiarly, if not exclusively, interested in discovering identities and constants. And these find expression in the formulas of science to the exclusion of individual differences. But it does not follow that this procedure involves *over-simplification*. For that would mean either that the formulas omit something which they intend to cover; or that the identities and constants they do cover are not actually present in nature. But neither of the charges can be substantiated.⁴ Science abstracts, but does so deliberately. And to abstract is not to invent or falsify — but only to discriminate and select.

¹ See below, pp 232-234 ² See below, pp 236-237 ³ See pp 54-55

⁴ Were science to assert that nature is *only* what is expressed in the formula, it would be guilty of what James calls "vicious intellectualism". As a matter of fact science makes no such assertion. On the contrary it specifically provides for individual differences by its use of 'variables'. See below, pp 234-235

It will appear, in short, that the ideal of 'descriptive economy' is not a fantastic hobby, but a canon of knowledge. The discovery of this ideal has not debased science, but has enriched logic and methodology. Through adopting it, science has not departed from reality, but has acquired a closer and more sure grasp of reality.

§ 7. There is one further charge against the descriptive method, that is held to involve not only physical science, but logic and mathematics as well. It is said that the choice of hypotheses is optional¹. Now as respects physical science, it is clear that this option has to do with the preliminary stages of investigation, and not with the conclusion finally adopted. The trial of a hypothesis is optional, but its success, or verification, is determined. Furthermore, the internal relations of the hypothesis itself are determined. The hypothesis selected for trial must be logically and mathematically correct.

But it may now be urged that logical and mathematical correctness is optional. And this consideration assumes a growing importance in the light of recent developments in the philosophy of mathematics. It is often said that logical and mathematical truths depend on the arbitrary selection of postulates². Time will show, I believe, that such expressions are one-sided, and, when taken unqualifiedly, misleading. There are evidently compensating considerations. In the first place, no logician and mathematician, however modern he may be, invents postulates in order to build systems on them, like the physical scientist, he searches for the postulates that will determine certain facts. As a recent writer expresses it, while postulates are not 'necessary from,' they are "necessary for, namely, for

¹ Cf e.g. F. C. S. Schiller "Axioms as Postulates," in *Personal Idealism*. Cf on the other hand, T. P. Nunn *The Arms of Scientific Method*, Ch. V.

² Cf e.g. E. V. Huntington "Sets of Independent Postulates for the Algebra of Logic," *Transactions of the Amer. Math. Soc.*, Vol. V, 1904. "These postulates are simply *conditions* arbitrarily imposed on the fundamental concepts," etc. (p. 290). Cf also Poincaré. *Science and Hypothesis*, pp. 37-39.

the solution of the problem."¹ So postulates are in the end verified, and not merely chosen. In the second place, there are well recognized canons or criteria, by which postulates may be judged, such as 'purity,' 'consistency,' 'independence,' etc.² And finally, all systems, whether the postulates be chosen or not, are made up of terms, relations, propositions and implications, which, whatever is done with them, are certainly not chosen *to be what they are*. In short, here, as elsewhere, thought accommodates itself to things, and its option is confined to selection from among them

§ 8. In the background of every mind that hesitates to accept the descriptive method as valid and adequate, will be found one or both of the notions of explanation which science has gradually abandoned, the notion of 'power' or the notion of 'good'.³ More commonly the two will be fused in the notion of 'activity'. This is regarded as the *real* cause, by which 'mere' description is judged and found wanting.⁴ It becomes a question as to whether the development of scientific method has thrown light on the meaning of 'cause', or has simply abandoned it. The answer depends, evidently, on the validity of this extra-scientific notion of cause, which science once employed, and which is now defended by the critics of science

The notion depends entirely upon the inner experience of activity. Fortunately this issue cannot be argued at length. A man must look for himself, as Hume did, and see whether he finds in the depths of his own nature, a power to do, which is clear, simple, and self-sufficient. He who makes the experiment, and resolutely declines to accept the confusion and vagueness of familiar immediacy as profound insight, will, I believe, conclude as Hume did.

¹ Karl Schmidt "Critique of Cognition and its Principles" *Jour. of Phil., Psych., and Scientific Methods*, Vol VI (1909), pp 281-282

² Cf Schmidt, *op cit*, *passim*

³ See above, pp 53-54

⁴ Cf. e.g. James Ward *op cit*, Vol I, p 64, Vol II, pp 79, 237, 247.

He will find sensations of bodily tensions, feelings of expectancy, etc., but no 'power.'¹ In other words, he will find what empirical analysis finds everywhere, *a manifold of terms in relation*. And when one proceeds to explain such a manifold, one will be led, as science in its field has been led, to the discovery of *descriptive laws*.

I conclude, in other words, that in adopting the descriptive method, science has exchanged a naïve and hasty notion of cause for a refined and rigorous notion. In the sense of the term that is most intelligible, the cause is *the law*, or its implication. Not necessarily the *mechanical law*; for analysis and description is, as we have seen, by no means limited to the type exhibited in physical science. But a logical cause, a mathematical cause, an ethical cause, will, I believe, turn out, in each case, to be a law or constant.² And if this is so, science is to be credited with the descriptive method, and not debited.

§ 9 The critique of science which has just been examined might be termed a 'methodological' critique, as distinguished from the 'metaphysical' critique to which we must now turn. According to this critique, science has to do with 'appearance' or 'phenomenon' rather than 'reality,' because of the nature of its basal concepts, *space* and *time*. These concepts, it is argued, are inherently contradictory or lacking in self-sufficiency; and physical nature, as the realm of space and time, must be supposed to be in the end resolved into something else. They must be corrected, or 'overcome,' in some higher unity, as evil is held to be transmuted into good in the providence of God.

The classic prototype of this critique is to be found in Kant.³ According to that writer, space and time are

¹ See below, pp. 261-264. Cf. Hume. *Enquiry Concerning the Human Understanding*, Selby-Bigge's edition, pp. 60-73.

² For a discussion of the application to ethics see below, pp. 116-117.

³ Bergson's critique of time is a blend of the methodological and metaphysical critiques, it is examined below, pp. 230, 234-235, 255-261. For Kant, cf. *Critique of Pure Reason*, Max Müller's translation, second edition, pp. 328 sq.

vitiated by "antinomies." (This means that on the supposition of the reality of space and time, it is possible to prove, with equal certainty, several contradictory pairs of theses and counter-theses; such as that space has boundaries and has not, time has a beginning and has not, space and time have indivisible elements and have not, etc. The moral, according to Kant, is that we must reject the original supposition, and deny the reality of space and time. If we regard them merely as acts of synthesis, they become indeterminate; or rather they derive their determination from something else, such as the subject-matter to be synthesized, or the motive actuating the operation of synthesis. It is like saying that number is not independently real, but is only the operation of counting. The question as to how many numbers there are will then have no meaning. There will be as many numbers as the material counted requires, or as any one has occasion to enumerate. Similarly, space and time are held to conform to the subject-matter to which they are applied, or to the motive governing their employment. And it is in terms of these non-spacial and non-temporal factors, in terms of something 'higher' than nature or outside of it, that the world assumes its final shape.))

(In more recent times the supposed paradoxes of space and time have been traced back to a more fundamental paradox involved in 'term' and 'relation.' It is argued that if two terms are to be related, they must each be related to the relation, and since these interpolated relations must again be related, we are launched upon an infinite regress. Thus the English idealist, F. H. Bradley, is brought to the conclusion "that a relational way of thought — any one that moves by the machinery of terms and relations — must give appearance, and not truth."¹ Or, as his disciple, A. E. Taylor, puts it, it is in some "supra-relational" mode of experience, in which even the concept of whole and part has been transcended,

¹ *Appearance and Reality*, first edition, p. 33, cf. Ch. III, *passim*

"that we come nearest to experiencing the real as it really is."¹ Since the space-time world is essentially relational, and affords the most perfect instance of the concept of whole and part, it is thus discredited, without entering into the further difficulties added by space and time themselves. Since, however, the critique of relations does not apply exclusively to science, but applies equally to all knowledge employing the analytical method, one need not undertake the examination of it here. Suffice it to say that Bradley's view has been repeatedly refuted, not only by "outsiders," but by fellow-idealists who are in thorough accord with his general philosophical position.²)

(A characteristic contemporary revival of the Kantian proof of the unreality of space and time is to be found in A. E. Taylor's *Elements of Metaphysics*, from which I have already quoted. The supposition of the reality of space and time places us in the following dilemma. "We must either arbitrarily refuse to continue the indefinite regress beyond the point at which its difficulties become apparent, as is done by the assertion that space and time have finite bounds or indivisible parts, or we must hold that the absolute experience actually achieves the summation of an unending series." But "with the recognition that space and time are phenomenal, . . . the difficulty disappears." For we may now say "that space and time, being constructions of our own, are *really* neither finite nor infinite series, but are the one or the other according to the purposes for which we use our construction." In other words, of space and time *per se*, we can say neither that they have, or have not, boundaries and indivisible parts. They may be regarded in the one way or in the other, according to the exigencies of thought. In themselves they are ambiguous. And we relieve ourselves of further responsibility in the matter

¹ *Elements of Metaphysics*, pp 147, 153, cf Ch IV

² Cf below, pp 157-158. The best refutation of Bradley is to be found in James's *Pluralistic Universe*, Appendix A, "The Thing and its Relations," *passim*. For an idealistic reply to Bradley, cf J. Royce. *The World and the Individual*, Vol I, Supplementary Essay

by concluding that this ambiguity proves that in "the absolute experience" they must be "taken up, rearranged, and transcended" — although "precisely *how* this is effected, we, from our finite standpoint, cannot presume to say." ¹)

§ 10. Now what shall we say of this argument? In the first place, it is notable and significant that the problems of infinity and continuity, which underlie the 'paradoxes' of space and time, are today receiving marked attention from logicians and mathematicians who have no metaphysical predilections. These writers, having no "absolute experience" to which to relegate their difficulties, are compelled to overcome them for themselves. They proceed upon the naive assumption that since there *are* such things as infinity and continuity, whatever place they may turn out afterwards to hold in the universe at large, it must be possible to examine and describe them. The conclusions which they have reached may for our present purpose be expressed very simply.²

In the first place, it is held that the alternatives which constitute a dilemma for Kant, Taylor, *et al*, are not strictly coordinate. For the objection to one is empirical, while the objection to the other is dialectical. Thus, for example, the least unit of spacial extension that can be observed or defined is evidently divisible by two. *There is no gainsaying the fact*. On the other hand, if one asserts this and concludes that spacial extension is always divisible, his opponent cannot point out that such is not the fact, but only that it contradicts some preconceived notion, such as, a whole is made up of parts, etc. Empirically, then, it seems proper to conclude that since space is in point of fact infinitely divisible, we must, if necessary, amend the

¹ A. E. Taylor, *op cit*, pp 260, 263. I have discussed this writer's position more fully in *Mind*, N. S. Vol XVI, 1908.

² For full details, the reader may consult B. Russell's *Principles of Mathematics*, Ch. XLII, XLIII, or E. V. Huntington's "The Continuum as a Type of Order," in the *Annals of Mathematics*, Vols VI, VII (1905).

notions which it contradicts.¹ In other words, non-metaphysical mathematicians and logicians agree that space and time are infinite, and devote themselves on the one hand to the description of the fact, and on the other hand to the removal of the dialectical difficulties that it involves.

Thus it is contended that the notion of a whole as 'made up of parts' involves a confusion between the notion of a whole as *containing* its parts, and a whole as *arrived at* by the successive enumeration and synthesis of its parts. The latter notion is subjective and accidental. We may, for example, define a line as an infinite class of points. It is true that a line cannot be 'made up' by adding point to point, but why should it be, since we can *define it as a whole*? An infinite series cannot be exhausted by the successive enumeration of its terms; but why should it be, when we can *define the law of the series*? In other words, there is no paradox in knowing an infinite whole, once we rid ourselves of the notion that to know means to take a *successive inventory* of the content.

Or consider the ancient paradox of motion.² It is held that Achilles cannot overtake the tortoise, because he can cut down the tortoise's lead only by an infinite, that is, endless, series of diminishing gaps. But this simply means that the operation of *overtaking* is a continuous process. If it were necessary for us to understand this process by enumerating every least phase of it, we should never conclude, and would be brought in despair to say that Achilles *never can* overtake the tortoise. But we need do nothing

¹ It may even be necessary to conclude, contrary to the usual notion, that a part may in a certain sense be equal to the whole. Cf. e.g. Royce: *The World and the Individual*, Vol. I, Supplementary Essay. I am not sure that this is the case, but it might be the case. In other words, the notion of whole and part is subject to correction in the light of any instances of it that may be observed, and an 'infinite' and 'continuous' whole is such an instance.

² For an interesting popular discussion of this and similar paradoxes in the light of modern mathematics, cf. James: *Some Problems of Philosophy*, Chap. X, XI. What follows above is in part a criticism of this author's view.

of the kind, since we can define the particular series in question, and provide by formula for all of its terms. And if it be objected that Achilles, at least, in traversing the intervening space, must successively pass through all of its least units, we may reply that he has a like infinitely divisible time in which to do it.

This very meagre treatment of the matter will serve, I trust, to suggest the method by which the seeming paradoxes of space and time may be dispelled. Such a method serves not only to throw light on the nature of space and time, and so to save the already over-burdened 'absolute' from the necessity of assuming entire responsibility for them, but it also justifies space and time, and establishes their reality in their own terms. In short, if science be defective or limited, it is not because space and time, its fundamental concepts, are unreal.

§ 11. The most important critique of science is yet to be considered: that critique, namely, which rests on the assertion of the *priority of consciousness*. Since this assertion constitutes the central thesis of idealism, and, as such, will occupy us during the next three chapters, a brief mention of it must suffice here.

In his book on Hume, Huxley writes as follows: "If the materialist affirms that the universe and all its phenomena are resolvable into matter and motion, Berkeley replies, True; but what you call matter and motion are known to us only as forms of consciousness; their being is to be conceived or known; and the existence of a state of consciousness, apart from a thinking mind, is a contradiction in terms. I conceive that this reasoning is irrefragable. And therefore, if I were obliged to choose between absolute materialism and absolute idealism, I should feel compelled to accept the latter alternative."¹ Huxley's acceptance of this argument is very significant. For in the great controversies of the last century, he has been one of the most

¹ T. H. Huxley: *Hume*, p. 279.

distinguished protagonists of science. Despite his scientific affiliations and habits of mind, he was prevented from being an idealist only because he was an agnostic. The "reasoning" which constitutes the chief support of idealism he regarded as "irrefragable"—in common with the majority of the philosophers of his own and the present generation.

Science, it is argued, abstracts things from their relation to knowledge. Concretely, everything is 'object' for a subject; something perceived, thought, or willed. This is supposed to become apparent at the moment when one becomes reflective or self-conscious—at the moment when one recognizes the central place of that 'I' which is naively overlooked, or, in the case of science, deliberately omitted. The *real nature* of things is grasped only when things are taken in this context. Viewed in this light, the world of science loses its self-sufficiency. It is, to be sure, internally systematic and consistent. But we are now to recognize that it is literally the world of *science*; formed to suit the purpose of scientific thought, and expressing, in the last analysis, the capacities and motives of knowledge. So it is to knowledge itself—to sense, thought, or purpose, that one must look for the root and stem of reality.

The critical examination of idealism must be reserved until we shall have become more fully acquainted with its grounds. But it is important to point out the essential agreement between idealism and the motive or standpoint of religion. We have already seen that while science, on the one hand, seeks to eliminate the personal equation, and to banish from mind the hopes and fears that are at stake, religion, on the other hand, makes the application and draws the moral.¹ Religion, in other words, is essentially a judgment of the bearing of reality on life. Now idealism asserts that reality is grounded in life, and ultimately controlled in its interests. Idealism not only construes things

¹ See above, pp. 28-29.

in their bearing on life, as religion does; but affirms that such a construction of things affords the only true insight into their nature. It not only adopts the method of religion, but affirms the priority of that method over the method of detachment and self-elimination adopted by science. Thus idealism comes to be identified with the institution of religion, and to be recognized as its champion against naturalism.

But this alignment of intellectual forces is confusing and misleading. In the first place, idealism, as a special theory, acquires unmerited prestige through its alliance with religion — which is a universal human interest. The validity which attaches to the interest and the institution in which it finds expression, is transferred to the theory. For the religious method has its incontrovertible rights. Reality *does* have a bearing on life, and it is necessary that reality should be so construed. But it does not follow that such a construction should, as the idealist would have us believe, take precedence of all other constructions. It may be that while reality affects life, it does so only accidentally, for philosophy to overlook this possibility, by employing the religious method exclusively, would be sheer bias. To this bias idealism is peculiarly liable.

In the second place, the association of idealism with the religious motive tends, as we have seen, to encourage the belief that philosophy is the same as religion. Idealism has not hesitated to identify the standpoint of philosophy in general with its own special bio-centric doctrine. But this is to exclude *ab initio* a philosophy which shall survey the totality of things dispassionately.¹ It is to beg the question of the place of life in reality at large, and thus commit philosophy with reference to a question which it should treat in a spirit of free and critical inquiry.

The central thesis of idealism, to the effect that consciousness, especially in the form of cognition, is the creative and sustaining principle in things, thus obtains a certain

¹ See above, pp. 29-30, 40-41

adventitious support from prevailing ideas concerning the relations of science, religion, and philosophy. It has also the support of certain dialectical arguments, which we shall presently examine. The outcome of that examination cannot fairly be anticipated here. But we shall find, I believe, that the arguments for idealism fail; and if so, the critique of science on the ground of the priority of consciousness is invalid

✓ § 12. Are we then to conclude that science has no bounds, and that the claims of an optimistic religion must therefore be abandoned? There remains a very simple

Science as a
Limited Body
of Truth

alternative. Without prejudice to the truth of science or to the validity of its methods, without disparagement of the reality of physical nature, or the reduction of it to dependence on consciousness, it is still open to us to conclude that science is not all of truth, nor physical nature all of being. That which distinguishes such a critique of science is its recognition of science and nature, as they stand. They are not partially true or real; they are simply parts of truth and reality. And the other parts, while they do not undo or transmute the fact, may nevertheless put a wholly new face on the total situation. They disprove every claim to the *exclusive* truth of science; and provide a balance that may justify religion.

The ground on which such a critique of science stands has already been stated.¹ Analysis shows that physical science presupposes logic and mathematics; or, that physical reality is complex, and decomposable into more simple terms and relations. Physical science has to do, furthermore, with *certain features* of physical reality. It describes the quantitative constancies exhibited by physical change. And there are other features exhibited even by bodies; such, for example, as their control, in the case of living bodies, by desire and will. Thus, being is neither physical in substance nor is it exclusively mechanical in behavior.

¹ See above, pp 82-84. I shall resume this argument, and amplify its religious applications, in the final chapter.

✓
Logic is prior to physics, in the sense that it has to do with more elementary forms of being; and ethics is at least correlative with physics, since what it describes is as truly found in the world as that which physics describes. And logic and ethics, taken together with other equally unimpeachable branches of philosophy, not only disprove the generalizations of naturalism, but afford a basis for religious belief.

It cannot, I think, be denied that naturalism has gained rather than lost by the usual tactics of its adversaries. It has been put in the position of being the more desirable alternative. As between naturalism and the traditional supernaturalism, no one would now hesitate to choose. And the polemic of idealism and pragmatism has similarly enhanced the credit of the very object of their attack. The charge of failure, the attempt to make capital out of the fallibility of science, has reacted upon its authors. The attacks upon the method of science have tended to create the supposition that the only alternative to naturalism is inexactness or unreason. The assertion of the unreality of space and time has not only failed to carry conviction, but has given rise to the more effective counter-charge of agnosticism and mysticism. And the attempt to disprove naturalism by claiming the universal priority of consciousness, has driven into the camp of naturalism many who shrink from the paradoxes of subjectivism. As the only alternative to supernaturalism, obscurantism, irrationalism, agnosticism, mysticism, and subjectivism, — naturalism has acquired a place of intellectual distinction which it does not in fact merit. The greater the opportunity, then, for a critique of science that shall do it strict justice; a critique that shall neither, on the one hand, concede the extravagant claims which naturalism makes in its behalf, nor, on the other hand, through the extravagance of its counter-claims, produce a reaction in its favor,

CHAPTER IX

THE PRAGMATIC THEORY OF KNOWLEDGE

§ 1. It is characteristic of pragmatism that it does not readily lend itself to summary definition. It can neither be identified with a fixed habit of mind, as naturalism can be identified with the scientific habit of mind, nor can it be reduced to a single cardinal principle, as can idealism. We are as yet too much in the midst of it to discern its general contour; indeed it is not so much a systematic doctrine as a criticism and a method. Nevertheless, it is not impossible, I think, to give a preliminary characterization of it that shall be roughly true, and shall serve as a guide to the study of its diverse aspects. Pragmatism means, in the broadest sense, the acceptance of the categories of life as fundamental. It is the *bio-centric* philosophy. And it must be added at once that the pragmatist means by 'life,' not the imaginary or ideal life of any hypothetical being, not the "eternal" life or the "absolute" life; but the temporal, operative life of animals and men, the life of instinct and desire, of adaptation and environment, of civilization and progress.

Although the pragmatic *movement* is new, pragmatism is, as James acknowledges, "an old way of thinking." It is dangerous, however, to identify contemporary pragmatism too closely with any of the earlier doctrines that resemble it. Thus the whole 'experimentalist' tendency in English science and philosophy may be said to have anticipated the pragmatist theory that truth is achieved by the trying of hypotheses. And Hume suggested at the close of his *Treatise* that we must be satisfied in the end with a belief that is suited to action.¹ But these antici-

¹ Cf. above, p 139.

pations of pragmatism are largely accidental, and more negative than constructive.

On the other hand, Kant, and the Fichtean idealists after him, maintained "the primacy of the practical reason." Pragmatism is doubtless related to this and other traditional forms of voluntarism. But from the idealistic form of voluntarism, at least, pragmatism is sharply distinguished by its naturalistic and empirical leanings. Pragmatism does, it is true, depart from naturalism in so far as this assigns the fundamental place to the mechanical categories. Pragmatism would insist on the priority of biology to physics, or at least upon the right of biology, together with the moral and social sciences, to regard the teleological method as independently valid. For if it can be argued that the processes of life may be described as quantities of mechanical force or energy, it can equally well be argued that energy and force themselves are instruments which serve the uses of life. But while pragmatism is opposed to a fundamental or universal mechanism, it has much in common with naturalism. It may even in a sense be called 'naturalistic.' For it identifies reality with "this world," with the sort of thing that is going on here and now, and regards perception as the most reliable means of knowledge.¹

The polemic of pragmatism is mainly directed, not against naturalism, but against idealism, and not against the cardinal or subjectivistic principle in idealism, but against idealism as the contemporary form of absolutism. The perfect antithesis to pragmatism is Spinoza, and it is the perpetuation of Spinozism in objective and absolute idealism that is the real object of the pragmatist attack. Absolutism is other-worldly, contrary to appearances; pragmatism mundane, empirical. Absolutism is mathematical and dialectical in method, establishing ultimate truths with demonstrable certainty; pragmatism is suspicious of all short-cut arguments, and holds philosophy to be no

¹ See below, pp. 363-366.

exception to the rule that all hypotheses are answerable to experience. Absolutism is monistic, deterministic, quietistic; pragmatism is pluralistic, indeterministic, melioristic. That which absolutism holds to be most significant, namely, the logical unity of the world, is for pragmatism a negligible abstraction. That which for absolutism is mere appearance — the world of space and time, the interaction of man and nature, and of man and man, is for pragmatism the quintessence of reality. The one is the philosophy of eternity, the other the philosophy of time. ✓

§ 2. Pragmatism like all contemporary philosophies is first of all a theory of knowledge. It is in the application of the vitalistic or bio-centric method to knowledge that all pragmatists are agreed. We may hope to discover here a body of common pragmatic doctrine from which the various pragmatisms diverge.

The Pragmatist
Conception of
the Theory
of Knowledge

The pragmatist has a characteristic way of setting the problem. In the first place, he means by knowledge a process, and not merely a product. The term knowledge is often used to mean what is known, in other words, completed knowledge, or science; and epistemology has been taken to mean the analysis of such completed knowledge with a view to discovering its universal principles or its underlying ground.¹ With pragmatists, however, knowledge means knowing: a complex event, involving an individual knower, a something to be known, certain means of knowing it, and then, finally, the cognitive achievement or failure. Critics of pragmatism have attempted to dismiss this method of studying knowledge by calling it 'psychological,' rather than 'logical.' It is certainly not exclusively logical, because it takes into account the circumstances and agencies of knowledge, and not merely its grounds. But, on the other hand, it is not psychological in any limited or disparaging sense, because it seeks to

¹ This is on the whole the idealistic conception of 'the categories.' Cf. above, pp. 139-142.

distinguish the cases of *true* knowledge from the cases of *false* knowledge. In short, it is both psychological and logical; and for the reason that both psychological and logical factors enter into that particular complex which we call knowing.

Regarding the whole of the concrete process of knowing, pragmatism finds that its form is practical. In its native habitat, where the pragmatist seeks it out and observes it, knowing is a phase of life, of action in an environment. This holds equally of the kind of knowledge that is ordinarily called 'practical,' and the kind that is ordinarily called 'theoretical.' Whether it be the execution of a policy, the calculation of the price of a commodity, the investigation of the properties of non-Euclidean space, or the demonstration of the attributes of God, knowing is always an enterprise, projected on a particular occasion, tried with particular means, attended with hope or fear, and concluded with success or failure. This is the subject-matter with which the pragmatist theory of knowledge primarily deals. And there are two problems which the pragmatist makes both prominent and fundamental: first, what is the rôle of ideas in knowledge? second, what is the difference between a true idea and a false idea?

§ 3. To understand the pragmatist theory of the rôle of ideas in knowledge, it is necessary to insist on the interpretation of knowledge which has just been given. The theory applies only in the cases where the full panoply of knowledge is present. And in particular there must be a having of ideas about something, where the ideas and the thing are in some sense different. In other words, we have here to do exclusively with reflective knowledge, what James calls "knowledge about" as distinguished from "knowledge of acquaintance." Professor Dewey would not regard the latter as knowledge at all, but would insist upon "an element of mediation, that is, of art, in all knowledge" ¹ While it will be necessary

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¹ John Dewey: *Influence of Darwin on Philosophy, and other Essays*, p. 80.

presently to inquire into these implied reservations, we shall do well for the present to exclude them. Just what, then, is meant by an 'idea,' in the sense in what we are said to have ideas *about things*?

The pragmatist answers, first, that an idea is whatever exercises the function of 'meaning.' In other words, there is no peculiar quality attaching to an idea as such — but only an office.¹ Anything may be an idea, provided you mean with it, just as anything may be a weapon, provided you do injury with it. The commonest instance of an idea is probably a verbal image, and there is no visible or audible form that may not serve as a word.² An idea is, in short, what an idea *does*. ✓ An idea is what

But what is this function of 'meaning,' which defines an idea? The pragmatist answers that meaning is essentially prospective, that it is a plan of action terminating in the thing meant. More specifically, an idea means a thing when it projects a series of acts that would, if carried out, bring that thing into the same immediacy which the idea itself already enjoys.³ Thus when I utter the word "cold," this verbal sound is so connected with a temperature quality that were I to follow up the connection, I would sense coldness. I may be said to have such a plan or incipient train of action without actually executing it — just as a traveller may be said to have a destination even though circumstances should prevent his arriving at it. An idea is like a railway ticket which will take you to a distant place, though you should never make the journey, or like a bank-note which has a "cash-value" though you should never redeem it.⁴ And like bank-notes, ideas are negotiable; they may be themselves used in place of currency for purposes of reasoning or communication. The virtue of ideas, thus lies primarily in their being practical substitutes for immediacy.⁴ An idea = Key to what.

¹ James: *Meaning of Truth*, pp. 30-31.

² Indeed the idea need not perhaps be an image at all.

³ James: *op cit*, pp 43-50, Dewey *op cit*, p. 90.

⁴ James *op cit*, p. 110.

But in order fully to grasp the pragmatist theory of the function of ideas we must inquire concerning their place in life at large. We have found that an idea is an instrument of meaning, that its function is to *mean* something other than itself. But what is the use of meaning, what is the function of the ideational process itself? The answer is apparent when it is observed that immediacy is not sufficient for purposes of action.

For one thing, only a part of the presented field of experience is pertinent to a particular action. It is necessary to *construe* each situation, that is, to select from its wealth of detail that aspect which relates to the matter in hand. Ideas are in this sense 'modes of conceiving' the given, a 'taking it to be' this or that. Discursive thought interrupts 'the continuity of habit' when a doubtful or ambiguous situation presents itself, which the organism has no ready-made way of meeting. In other words, when one doesn't know what to do about it, one thinks about it. Such an occasion constitutes one of those "particular crises in the growth of experience" to which, according to Dewey, thought is always relative. On such an occasion the idea is the "instrument of reconstruction," which delivers the agent from his predicament. The situation being reconstrued, life runs smoothly again on the new basis.¹ Thus to ideate experience, to think it, is to represent it in some special and suitable light.

Again, the ideational process makes it possible to act on the remote environment, on things that lie beyond the range of the individual's sensibilities. Ideal substitutes for these things, ideas that mean them, may serve as well; so that man may be said to live actively not only in the world he perceives, but in the limitlessly extended world he knows about. And finally, by means of ideas it is possible to unite range with compactness. Thus the formulas of science put man in touch with the immense expanse

¹ Dewey *Studies in Logic*, p. 20; A. W. Moore *Existence, Meaning, and Reality* (Chicago Decennial Publications), p. 16

of nature, without overwhelming and bewildering him, because they represent it through its constant features. Their bulk is as small as their meaning is great.

This, then, is the pragmatist theory of the instrumental function of ideas. The theory puts a double emphasis on the pragmatic character of thought. An idea is defined pragmatically, as a virtual access to an immediate experience of that which it means. And the whole process of ideation is again defined pragmatically, as the means of acting on the environment.

§ 4. When we turn to the pragmatist theory of truth,¹ which in English-speaking countries is regarded as pragmatism's most notable contribution to philosophy,
 The Meaning of Truth we find it again necessary to set the problem with some care. I have placed this theory second in order of exposition because it is properly to be regarded as the sequel to the instrumental theory of ideas.

In the first place, the pragmatist is talking about the kind of truth that is humanly attainable, lying within the individual thought process itself. He not improperly insists that if truth is to be conceived in hypothetical or ideal terms, then this conception itself must be true for the thinker who constructs or defines it. Thus if one asserted that truth attaches only to the thinking of an absolute knower or to an absolute system of thought, then this assertion itself would be in some sense true for the finite philosopher who maintained it. And it is this latter sense of the term with which pragmatism has to do — not the truth of God's knowledge, but the truth of my knowledge of God.¹

In the second place, truth for the pragmatist is invariably an adjective of ideas; and by ideas he means not Platonic essences, but the modes of an individual's thinking.) When are ideas, in this sense, true? What is the nature of *knowing truly*? Like all forms of practice, thinking, believing, or the forming of ideas is essentially fallible. There

¹ Cf. below, pp. 242-243

is a right way and a wrong way. What on any given occasion distinguishes the right way of thinking from the wrong way? When is an idea 'a good idea,' and when is it a 'bad' one? It is evident that you have not solved the problem of truth in the pragmatist sense until you have also solved the problem of error. For pragmatism, in short, truth does not mean the same thing as reality or existence, but is a property, exclusively, of that instance of existence which we call 'idea' or 'belief,' in its relation to that second instance of reality or existence which we call 'object' of the first. Truth is a property of ideas as these arise amid the actual processes of human thinking, it is something which happens to ideas in the course of their natural history. And since ideas have a function, which they may or may not fulfil, truth is one of two opposite fortunes which may befall ideas, the other being error.

We are now in a position to frame the pragmatist definition of a true idea. An idea is true when it works, that is, when it is successful, when it fulfils its function, or performs what is demanded of it. An idea is essentially for something; and when it does what it is *for*, it is the 'right' or the 'true' idea.

Lest this should seem more obvious than important, it should be contrasted with the view that has been commonly held both by philosophers and common sense. According to that view the truth of ideas lay in their resemblance to their objects. Ideas were regarded as copies, pictures, replicas, true in proportion to their likeness. Pragmatism, on the contrary, insists that a true idea need not resemble its object at all, precisely as a word need not resemble what it denotes; (if there is resemblance, it is accidental and negligible so far as truth is concerned.) The truth of an idea lies not in the present relation of similarity, nor in any present relation whatsoever, but in the practical sequel. If, in relation to the motive which prompted me to form it, my idea succeeds, the inciting interest being satisfied, my idea is true. Ideas are essentially instruments, and not

images; and the proof of the instrument is in the using. The particular kind of excellence proper to this particular kind of instrument is called 'truth.'

§ 5. So much for the pragmatist theory of truth stated in the terms common to all pragmatists. We must now

Modes of Veri-
fication Verifi-
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Consistency

pass on to sharper distinctions, and to the ambiguities, doubts, and criticisms to which these distinctions give rise. (The success or truth of the idea is relative to its use, and the verification of it consists in successfully using it.) But there are various uses which ideas may serve. Are we to regard all of these uses as equally germane to an idea's truth? I may, for example, be induced by various motives to form an idea of my future state in the life after death. Such an idea may serve the purpose of preparing me for what I am going to see, or for what I am going to be called upon to do. Such an idea may console me for the loss of friends, or it may be demanded by the logical implications of my philosophical system. Suppose these tests conflict. Can I discriminate among them as respects priority? Or shall I attach equal weight to all, and determine the truth of my idea by the general preponderance of utility? I find no clear answer to this question in the writings of pragmatists. All four of these tests, and possibly others, are recognized as valid; and the choice from among them would seem to be not infrequently governed by the exigencies of controversy. In order to bring out more clearly the difference between these truth-tests or modes of verification, I shall invent names for them as follows: verification by perception, consistency, operation, sentiment, and general utility.

Verification by perception, is simply the following up of the meaning of an idea. An idea means something, as we have seen, when it is so connected with something as to lead to the presentation of it. The idea must be a sort of handle to the object, a means of recovering it. And when I try my idea by using it to recover its object, I verify it

in this first sense. It is true if the perception is what the idea calls for, or what the idea leads me to expect. Thus having an idea of my future state means having something now in mind (it may be no more than a verbal complex) that is so related to my environment as to conduct me to a certain locus in experience; and it is a true idea in proportion as it prepares me for the perception which would there greet me. To verify my idea in this sense would be to follow its lead into this perceptual presence, and so test my preparedness. A shock of novelty and surprise would prove the untruth of my idea; a sense of recognition would indicate its truth.¹

Verification by consistency, is the testing of the idea on trial, by ideas already in good and regular standing. The idea is proved true by this test when it is not contradicted by other ideas, or is positively implied by them. Thus my idea of my future state is proved by this test in so far as it is not contradicted by the accepted physiological theory of death, or is implied by the accepted theory of the nature of the soul.

Now verification by perception and by consistency evidently stand apart by themselves. They correspond to the traditional criteria of empiricism and rationalism. In restating them pragmatism has simply pointed out that in both cases verification is a series of acts, governed by motives, and terminating in success or failure. Furthermore, pragmatists such as James regard these two modes of verification as the strictly "theoretical" tests of truth. They may not in any given case be sufficient, but so far as they go they have a peculiar validity. "Between the coercions of the sensible order and those of the ideal order our mind is thus wedged tightly." The formation of ideas that shall be determined by these two "coercions" is the cognitive interest in the narrow sense. Such ideas have a "subsequential utility" — that is, they may be usefully employed by other interests; but they get their original

¹ For similar examples, cf. James *op cit*, pp 33, 104.

verification from perception or consistency. And "sometimes alternative theoretic formulas are equally compatible with all the truths we know, and then we choose between them for subjective reasons."¹ But there remains an important difference between the grounds of the validation of the alternatives, and the grounds of the validation of such a choice from among them. All this strongly suggests that it might be clearer if the term 'true' were restricted to ideas verified in one of these ways — by perception or by ideal consistency. "Subsequential utility" and "subjective reasons" would then remain as extra-logical grounds of belief. One might readily agree that truth in this narrower sense was an insufficient criterion, that the exigencies of life required belief in excess of proof. But the stricter truth tests would not be confused nor their priority compromised. The virtue of such a course will become more apparent as we proceed.

§ 6. By 'verification by operation' I mean the same thing that James means by "subsequential utility." Or to employ another distinction made by the same author, I mean verification by "active" rather than "passive" experience.² Thus my idea of my future state is verified in this sense in so far as the plans which I base on it succeed. Such would be the case, for example, if I were to receive my reward in heaven for sacrifices deliberately made in this world.

Pragmatism has rightly insisted upon the relation of cognition to collateral interests. That there is always some such relation no one will be disposed to deny. The cognitive interest is one of the functions of a complex organism, and has developed because of its organic usefulness. Whatever is known is available for any uses of which the organism is capable; it can be felt, acted on, talked about, written down, thought about, or dealt with

¹ James *Pragmatism*, pp. 211, 217, cf. pp. 216-217; *Meaning of Truth*, pp. 206 sq.

² *Meaning of Truth*, p. 210.

in any of the other ways characteristic of human life. Mr. Schiller goes to unnecessary lengths to show that there are no useless truths. His conclusion could be drawn at once from the unity of the psychophysical organism; the sensory, associative, affective, and motor elements in human nature all contribute to a more or less common fund of resources. And one may easily go farther, and show that the solidarity of society and the ready means of communication and intercourse, make these resources available for humanity at large. ✓ But this is very far from a proof that truth *consists* in such uses. They are involved because of the organic and social connections of the truth-seeking function, but truth would not cease to be truth if some organic or social abnormality were to make it impossible to use it. As a matter of fact, since the development of scientific method it has been customary to reach truths by the theoretical means above described, and to regard their truth as established quite independently of the uses to which subsequently they may or may not be put.

The issue is somewhat confused by the fact that, entirely apart from the process of verification itself, many truths are practical in their subject matter. The cognitive interest, originally in bondage to the organism, is most urgently concerned with what may be called truths of use. The most immediately important truths, the cash truths, so to speak, are answers to questions of this form: What will happen to me if I do *a* to *b*? Truths of physical science are largely of this order; and it is natural to regard these as generally typical because of their bulk and urgency. But it will be observed that truth is here made, not by the practical sequel to the theory, but by embracing the practical sequel within the theory, and then testing the whole by 'perception.' ✓ If I find that *c* will happen to me if I do *a* to *b*, I am experiencing the nature of a temporal circuit, including terms belonging both to the environment and to my own body. Experiment is here not an external

practical test, but the living through, the direct serial experience of, a set of connected events.

It is proper to ask, then, whether verification by operation is an independent test of truth. For it would appear to be either the employment of truths already established by our two former tests, or only a special form of these tests. Let me quote an example from Professor A. W. Moore. "The idea of an ache as the ache of a certain tooth is true, if an operation on the tooth alters the ache."¹ This verification can be construed in one of two ways. On the one hand, the judgment 'such a tooth is aching' is verified by observing the localization of the ache, or by inference from the diseased character of the tooth. The latter would, I should suppose, be regarded as in the last analysis the most reliable test, and both would fall under one or the other of the strictly theoretical criteria above described. And whether one thereupon has the tooth pulled, or not, would not affect the truth of the judgment so verified. The truth would be useful, but its usefulness would be a secondary and irrelevant circumstance. Or, on the other hand, the judgment "were I to have this tooth pulled, the pain would disappear" is verified by observing the sequence *tooth pulled — ache gone*, where the judgment refers to an operation and is verified by perceiving the operation. Thus in both cases truth is tested by perception or consistency; and pragmatism instead of adding a new test, is confined to showing the pragmatic character of the old familiar tests of experiment and inference.

Verification by sentiment ✓ is the proof of an idea by its immediate pleasantness or by its tonic effect upon the will. Thus my idea of my future state is verified in this sense if "I like the idea," or if it makes life better worth living." "We choose the kind of theory to which we are already partial," says James; "we follow 'elegance' or 'economy.'" "No completely pessimistic system is ever judged com-

¹ *Pragmatism and its Critics*, p. 87.

pletely 'true,'" says Schiller; "because it leaves unre-
moved and unresolved a sense of final discord in existence,
it must ever stimulate anew to fresh efforts to overcome
the discrepancy¹ But it is clearly recognized by both
of these writers that such considerations of sentiment are
to be allowed to weigh only when the tests of perception
or consistency are not decisive. Were the less parsimonious
or less harmonious hypothesis to be verified by an *experi-
mentum crucis*, or proved the only means of avoiding
contradiction, man's taste for parsimony and harmony
'would not create the least presumption against it. The
perfectly agreeable hypothesis must yield at once before
fact or contradiction

Would it not be clearer and more accurate, then, to say
that while sentiment has nothing to do with truth, it may, as
an extra-logical motive, be allowed to influence belief where
verification proper is impossible? Indeed this is, I think,
a fair rendering of James's famous "right to believe."
The religious hypothesis is essentially an unverifiable
hypothesis. Appeal to sensible facts and inference from
established truth both leave the issue doubtful. But
meanwhile it is necessary to act on *some* such hypothesis.
We must in the practical sense believe where we cannot
in the theoretical sense know. And here we are justified in
allowing our tastes and our hopes to incline the balance.
For we should be no better supported by proof if we
believed the contrary, and should lose the emotional values
beside. Furthermore, in this case, belief contributes
evidence in its own support. For what I believe in is, so
far as I am actively concerned in it, the more likely to
prevail if I do so believe. Such a making true, means
making *facts* which will in time afford a sensible verifica-
tion for my belief. So in James's entire philosophy of
religion² it is constantly implied that there is a strict sense
of the term 'truth,' relating to the cognitive or theoretic

¹ James. *Pragmatism*, p. 217; F. C. S. Schiller. *Humanism*, p. 50.

² See below, pp. 369-370.

interest, and both independent of and prior to all sentimental grounds for belief.

§ 7. Verification by general utility, is the proof of an idea's truth by the total satisfaction it affords, by its suitability to all the purposes of life, individual and social. "Truth," writes Schiller, "is that manipulation of [objects] which turns out upon trial to be usefully primarily for any human end, but ultimately for that perfect harmony of our whole life which forms our final aspiration."¹ Thus, my idea of the future state would be proved true on this ground, if it proved in all respects a good idea to live by, borne out by facts, consistent with my other ideas, a good working hypothesis, and above all consoling and inspiring. And it would receive additional verification of the same type if it satisfied the needs of mankind in the aggregate and survived the test of time.

The significant thing about this criterion is its indiscriminate merging of the more specific criteria discussed above. Pragmatists have repeatedly protested that the truth of an idea is determined by the specific purpose and the specific situation that give rise to the idea. Thus Dewey says, "It is the failure to grasp the coupling of truth of meaning with a *specific* promise, undertaking, or intention expressed by a thing which underlies, so far as I can see, the criticisms passed upon the experimental or pragmatic view of the truth."² In this opinion Dewey is undoubtedly correct. Pragmatism has seemed to most of its critics to put strictly cognitive considerations upon a par with considerations of sentiment and subsequential utility. And pragmatist writers are responsible for this impression — or misunderstanding, if such it be. Owing perhaps to the

¹ *Humanism*, p. 61.

² *Influence of Darwin on Philosophy, and other Essays*, p. 95, note. Cf. also *Studies in Logic*, pp. 20, 23, where he defines a logic concerned with "description and interpretation of the function of reflective thought," and insists that thought cannot be judged "apart from the limits of particular crises in the growth of experience."

exigencies of controversy, or to a carelessness of statement, pragmatists have taught us to believe that an idea is true in so far as it works or satisfies in any respect whatsoever.¹ Or they have referred now to one ideational value and now to another, without consistently distinguishing the cognitive value from the rest. It has not unnaturally been supposed that pragmatism intends to make these various values commensurable and interchangeable. And it would be correct to infer from such a supposition that an idea which was shown to be contrary to sensible fact, or contradictory to accredited truths, might yet be proved true by affording a surplus of sentimental or utilitarian value.

But such a conclusion is very properly denounced as reactionary. Science has become solvent and prosperous through regarding these values as fictitious, and excluding them from its accounts. Indeed enlightenment and criticism mean little more than conscious discrimination against these values. For the intellectual hero, this is the great renunciation. He must forego the pleasing and the hopeful hypothesis, and he must be resolutely indifferent to the extra-theoretical uses to which his hypothesis may be put. Knowledge advances *pari passu* with the specialization and refinement of the theoretic interest. The very use of knowledge, the variety and fruitfulness of its applications, depend on its being first tried and proved independently of these applications. And knowledge is a means of adaptation, not in proportion to its pleasantness and hopefulness, but in proportion as it dispels illusions, be they ever so grateful and inspiring. In short the pragmatist handling of this question of truth is confusing and dangerous in so far as it consists of loose generaliza-

¹ Cf., e.g., such a statement as the following "All that the pragmatic method implies, then, is that truths should *have* practical consequences. In England the word has been used more broadly still, to cover the notion that the truth of any statement *consists* in the consequences, and particularly in their being good consequences." James *The Meaning of Truth*, p. 52.

tions concerning the practical or satisfying character of truth; in so far as it tends to blur the difference between the strictly theoretic value of ideas on the one hand, and certain derivative and secondary values on the other. Pragmatism is reactionary and dangerous in so far as it coordinates and equalizes verification by perception and consistency with verification by sentiment and subsequent utility.

There remains a strict and limited pragmatism which is not guilty of this offence. Such a pragmatism consists in the proof that the theoretic interest itself is in fact an interest. Ideas are functional rather than substantial. Their relation to their objects is not one of resemblance, but of leading or guidance. Their verification is not a matching of similars, but a process in which their leading or guidance is followed to that terminus of fact or being which they mean. And since the theoretic interest is an interest, it is as a whole rooted in life, and answerable to the needs and projects of life. In other words, truth, a theoretic utility, has also, because of the auspices under which it is begotten, a subsequential utility. Finally, it is the proper and consistent sequel to this to allow taste, aspiration, and hope to incline the balance of belief when, and only when, truth in the strict sense is not attainable.

§ 8. Epistemology and metaphysics are so intimately related in contemporary philosophy, that a theory of knowledge is not infrequently accepted without further ado as a theory of being. And yet, as we have learned from our study of idealism, such procedure begs a most crucial philosophical question. What is the place of knowledge in reality? To what extent does the order of nature conform to the order of knowledge? Is the cognitive version of experience final and definitive, or is it abstract and partial? These are clearly independent questions, that are not necessarily involved in an account of knowledge itself. We have thus far confined our attention to the pragmatist description

The Realistic
Version of
Pragmatism

of the knowledge process. We must now face the further question: What is the pragmatist doctrine concerning the metaphysical status of the knowledge process? And we shall find, I believe, that pragmatism is here divided against itself on the same issue that divides idealism and realism. Some pragmatists, such as James, are avowedly, and on the whole consistently, realistic. Others, such as Schiller, favor, if they do not unequivocally adopt, the subjectivistic alternative.

Let us examine, first, ² the realistic version of pragmatism. Knowledge, according to all pragmatists, is a specific complex, comprising an idea or belief, an object ideated or believed, and a relation of meaning and verification connecting the two. Now a realistic version of this theory will assert that the various components of the knowledge process are independent of their places in this process. They are regarded as having other places besides, so that their being is not conditional on their finding a place in knowledge¹ Thus a realistic pragmatist will in his epistemology describe the sensible facts of nature as the termini to which ideas lead, but he will not suppose that such facts must be thus related to ideas in order to be. Sensible facts are occasionally and accidentally the termini of ideas, but not essentially so. And he is led naturally to this view by his acceptance of the general biological categories. Knowledge is a form of adaptation to a preexisting environment. Thought proposes, fact disposes. "If my idea is to work," says Bradley, in criticising pragmatism, "it must correspond to a determinate being which it cannot be said to make."² In the name of pragmatism, James accepts this very conclusion "I start with two things, the objective facts and the claims, and indicate which claims, the facts being there, will work successfully as the latter's substitutes and which will not. I call the former claims true."

¹ For a full discussion of the relation between realism and pragmatism, cf W P Montague's articles, "May a Realist be a Pragmatist?" *Jour. of Phil., Psych., and Scientific Methods*, Vol VI, Nos 17-20

² "On Truth and Practice," *Mind*, N S., Vol XIII, p. 311.

And again, "For him [the pragmatist], as for his critic, there can be no truth if there is nothing to be true about. . . . This is why as a pragmatist I have so carefully posited 'reality' *ab initio*, and why, throughout my whole discussion, I remain an epistemological realist."¹

§ 9. A subjectivistic version of pragmatism, on the other hand, identifies the components of knowledge altogether with their place in that system, and there results a metaphysics in which reality coincides with the history of knowledge. Reality is either fact, idea, or "funded" belief, where these are *defined* as terms in the pragmatic process of verification. Whatever is known is essentially such, owing its character and its reality to the circumstance of its being known.

Thus Schiller writes, "That the Real has a determinate nature which the knowing reveals but does not affect, so that our knowing makes no difference to it, is one of those sheer assumptions which are incapable, not only of proof, but even of rational defence. It is a survival of a crude realism which can be defended only, *in a pragmatist manner*, on the score of its practical convenience, as an avowed fiction" Since reality is essentially what it is in the knowledge process, Schiller naturally concludes that "ontology, the theory of Reality," is "conditioned by epistemology, the theory of our knowledge", and since the knowledge process is essentially practical it is proper to conclude that "our ultimate metaphysic must be ethical."²

James has asserted that Schiller's view differs from his own only in method of approach. "As I myself understand these authors, we all three [including Dewey] absolutely agree in admitting the transcendency of the object

¹ *The Meaning of Truth*, pp. xix, 195 Cf Dewey "So I beg to remind you that, according to pragmatism, ideas (judgments and reasonings being included for convenience in this term) are attitudes of response taken toward extra-ideal, extra-mental things" (*Influence of Darwin, etc.*, p. 155) But cf below, pp. 225, 314-315.

² *Humanism*, pp. 11, note, 9, 105

(provided it be an experienceable object) to the subject, in the truth-relation. . . . What misleads so many of them [the critics] is possibly . . . the fact that the universes of discourse of Schiller, Dewey, and myself are panoramas of different extent. . . . Schiller's universe is the smallest, being essentially a psychological one. He starts with but one sort of thing, truth-claims, but is led ultimately to the independent objective facts which they assert, inasmuch as the most successfully validated of all claims is that such facts are there. My universe is more essentially epistemological. I start with two things."¹

But the transcendency of the object "in the truth relation" is not realism. This means no more than that cognition is essentially dual, and does not affect the question of the transcendency of the object with reference to cognition as a whole. Realism asserts not only that the object transcends the idea, but that it in some sense transcends even that status of objectivity in which it is cognitively related to an idea. Nor does James recognize the crucial importance, in connection with this issue, of the starting-point. Because Schiller's universe of discourse is a psychological one, it turns out in the end that his universe is a psychological one also. He not only begins, but ends, within the knowledge process. Indeed he expressly adopts the phrase "idealistic experientialism" "to designate the view that 'the world' is primarily 'my experience,' *plus* (secondarily) the supplementings of that experience which its nature renders it necessary to assume. . . . In that case the world, in which we suppose ourselves to be, is, and always remains, relative to the experience which we seek to interpret by it."²

Precisely the same objections which hold against idealism in general hold against "experiential idealism." For its

¹ *Meaning of Truth*, Preface, pp xvii-xix (italics mine) Cf also pp. 242-244

² *Humanism*, p. 281. Whether any pragmatist is wholly free from the subjectivistic taint of the term 'experience,' is perhaps doubtful. See below, pp 314-315

grounds are precisely the same. Arguing from 'the ego-centric predicament,' Schiller says: "The simple fact is that we know the Real as it is when we know it; we know nothing whatever about what it is apart from that process."¹ And, his "ethical metaphysics" is virtually assumed when he takes the world knowledge-wise at the outset. In other words, he is also guilty of the fallacy of 'definition by initial predication.' It is unnecessary for me to repeat what I have already said concerning these basal errors of the whole subjectivistic way of thinking.² And the subjectivistic principle in pragmatism is not only unproved, but here, as elsewhere, is essentially vicious. Before pressing this criticism further, however, I wish to consider the bearing of the realistic-subjectivistic alternative upon several pragmatist conceptions.

§ 10. There is, for example, a realistic and a subjectivistic version of "satisfaction." Satisfaction, realistically

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| Realistic and Subjectivistic Interpretations Satisfaction The Making of Reality | construed, is grounded on a determinate relation between <u>interest</u> , <u>instrument</u> , and <u>environment</u> . Under given circumstances, and in behalf of the governing interest, a certain instrumentality has an objective rightness or fitness ³ |
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Thus an idea may 'satisfy' the situation, in the sense of meeting it. The confrontation of interest and environment is prior and independent, and imposes conditions upon the idea. So that the idea which feels satisfactory to the agent may not in fact work. There is a difference between a sense of adaptation and real adaptation

In subjectivistic terms, on the other hand, the state of felt satisfaction is decisive. The environment and the interest have no inherent structure apart from the successes of knowledge. They are the modes or the precipitates of an inwardly harmonious life. From the subjectivistic standpoint, accordingly, there is no difference of principle between verification by contact with the environment and

¹ *Op cit*, p. 11, note

² See below, pp 333-334.

³ See above, pp. 126-132.

verification by sentiment. Indeed the former tends to be resolved into the form of the latter.¹

Or consider the pragmatist doctrine that knowing makes reality. For the realistic pragmatist this doctrine has a very limited scope. Schiller sums up the realistic version of the matter as follows:

(1) "Our making of truth really alters 'subjective' reality." In other words, knowing adds *itself* to reality. (2) "Our knowledge, *when applied*, alters 'real reality' and (3) is not real knowledge if it cannot be applied. Moreover (4) in some cases, e.g., in human intercourse, a subjective making is at the same time a real making of reality. Human beings, that is, are really affected by the opinion of others." (5) "Mere knowing always alters reality, so far at least as one party to the transaction is concerned. Knowing always really alters the knower"²

A. W. Moore gives a similar account of knowledge of the past. The past can be modified by knowledge in so far as the sequel to the past, or the past continued into the present, can be affected by applied knowledge of it. "Caesar's act, like John Brown's, 'goes marching on.' Like all other *historic* acts, it is not yet finished, and never will be so long as it continues, through acts of knowledge, to produce new 'results.'"³ In other words, on realistic grounds a thing is *not* modified simply by being known. Knowledge modifies knowledge, and the thing which is known is liable on that account to be acted on, and so modified. But the past and the distant, though they may be known, cannot be modified. Only the present continuation of the past or the near continuation of the distant can be modified, because modification requires a propinquity that is not required for knowledge.

But this restricted modification by knowledge does not satisfy the metaphysical yearnings of pragmatism. The

¹ Cf. Schiller, *Humanism*, pp. 49-50

² *Studies in Humanism*, pp. 438-439

³ A. W. Moore *Pragmatism and its Critics*, p. 103.

pragmatist as a rule prefers to state the matter loosely — to assert the interesting and hopeful generalization that knowledge makes reality, rather than to specify in what respects. Or he goes over altogether to the radical contention that the environment is wholly plastic, and knowledge an instrument of "creative evolution." In the essay from which I have quoted above Schiller fondly dwells on such a speculative possibility. He suggests a hylozoistic nature that responds socially as our fellows respond. He emphasizes the incompleteness of reality, the freedom of man, and the perpetual yielding of fact to art. And though he nowhere removes the paradox in which he admits the doctrine to be involved, he makes clear his faith "that Truth is great and must prevail, because it has the making of Reality."¹

The issue is further complicated by the pragmatist doctrine concerning concepts; these, as distinguished from percepts, being supposed to be peculiarly the creatures of the knowing process. The conceptualized world, at least, is a made world, a projection of practical needs. Bergson, the arch-creationist of them all, rests his case mainly on his theory of concepts, and we shall therefore return to this matter again.

§ 11. We have already learned enough to enable us to recognize the seriousness of the dilemma by which pragmatism is confronted. On its strictly epistemological side pragmatism is naturalistic and biological. "The mind is conceived as operating in an environment to whose decrees it must submit as the price of adaptation." Upon this basis the complex process of knowledge is made up of definable parts. Truth is a product into which the environment enters as a prior and independent component. The environment is not itself subject to the fluctuations and vicissitudes of knowledge; and knowledge may be construed as a human and doubtful enterprise without compromising the structure

¹ *Studies in Humanism*, p. 451. Cf. p. 428.

of the world from which it arises and to which it addresses itself.

But when, on the other hand, the factors of knowledge, and in particular its environment, are regarded as the precipitate of knowledge itself — then knowledge is left suspended in mid-air. It must be conceived as somehow spinning out of itself the very auspices and surroundings which condition it and give it meaning. There arises the same contradiction that vitiates the Fichtean idealism. Activity must itself contrive the very foil and medium without which it cannot act. And if the arguments for the subjectivistic view are accepted as valid, there is no defence against the vicious paradoxes of relativism. Individual judgments conflict, your judgment and mine, my judgment of today and my judgment of to-morrow, the belief of one epoch, and the belief of another; and the objects of these judgments, now regarded as their creations, are implicated in this conflict. There is no court of appeal to arbitrate their destructive inconsistency. It is not that there is no fixed truth; there is no fixed fact or being, not even past events. For the subjectivistic pragmatist has destroyed the distinction on which pragmatism itself has repeatedly insisted, the distinction between truth and reality. There are, then, only two courses open to the subjectivistic pragmatist. If he is to retain his subjectivism he must imitate the example of idealism, and accept a cosmic or absolute knower. For if reality is to repose in knowledge, there must be a knowledge which gives shape and outline to the world. The voluntaristic idealist is on subjectivistic grounds correct in charging pragmatism with relativism; and his offer of "absolute pragmatism"¹ as a harbor of refuge is both pertinent and opportune.

Thus if pragmatism is to avoid absolutism, and remain within empirical and naturalistic limits, it must adopt the realistic alternative, as James has so successfully done.

¹ Royce: *William James, and other Essays*, p. 254; cf. also "The Eternal and the Practical," *Phil. Review*, Vol. XIII, 1904.

And the pragmatist theory of knowledge cannot be less illuminating and important for being merely a theory of knowledge. To it will still belong the credit for an original and sound analysis of the process of reflective thought — for a scrupulously empirical account of 'ideas,' of 'meaning,' and of 'truth' as a specific and characteristic form of human success.

CHAPTER X

IMMEDIATISM VERSUS INTELLECTUALISM¹

§ 1. THE pragmatist theory of knowledge, in the limited sense, is an analysis and description of the concrete process of intellection or reflective thought. It is an account of mediate knowledge, or knowledge about — of that knowledge in which ideas of things are entertained, believed, or verified. Pragmatism finds intellection to be essentially a practical process, or operation. But in the course of his exposition, the pragmatist is perpetually attacking what he calls 'intellectualism,' by which he means the uncritical use of the intellect. The pragmatist describes the intellect, and because he understands it, he can discount it; the "intellectualist," on the other hand, reposes a blind confidence in it. The pragmatist sees around the intellect, and construes reality in terms of its process and circumstances, while the horizon of the intellectualist is bounded by the intellect, and he can only use it and construe reality in terms of the results. Whereas the pragmatist vitalizes the intellect, his opponent intellectualizes life.

It is the old issue between the intellectualistic and voluntaristic views of the soul, revived in a new form; and it appears at first as though it were merely a question as to which of two parties shall have the last word. The intellectualist asserts that the will is a case of knowledge; it is what you know it to be, it must be identified with your idea or definition of it. The voluntarist or pragmatist, on the other hand, protests that knowing — the having of ideas or the framing of definitions, is a case of willing. And we seem to be launched upon an infinite series of rejoinders.

¹ Portions of this and the following chapter are reprinted from "Notes on the Philosophy of Bergson," *Jour of Phil., Psych., and Scientific Methods*, Vol VIII, 1911, Nos. 26, 27

But such is not necessarily the case. For it is entirely possible to regard both parties as correct. Suppose it to be admitted that knowing is a kind of willing. What, then, is willing? Is there any contradiction in supposing that one can know; in supposing that one can will to know what willing is? Bergson evidently believes that there is. He argues that the intellect, because it is a *special form* of life, cannot know the whole of life. "Created by life, in definite circumstances, to act on definite things, how can it embrace life, of which it is only an emanation or an aspect? Deposited by the evolutionary movement in the course of its way, how can it be applied to the evolutionary movement itself?"¹ But why not? Unless we are to assume that to know and to be known are the same thing, there is not the slightest difficulty in supposing that a part can know the whole. Assuming intellection to be a special act, there is no difficulty in supposing that it addresses itself in turn to the collateral parts of life; and in supposing that the act itself is known through the mutual knowledge of several intellects.² Furthermore, it is absurd to describe knowing as willing unless one *does* know what willing is.

The purely dialectical question turns out, like most such questions, to be a quibble. The real question is this: is there a special variety of knowledge, namely mediate or reflective knowledge, the nature of which as a process can be, apprehended only by another more general variety of knowledge, namely immediate knowledge? In these terms it is possible to distinguish two theoretical opponents and adjudicate their quarrel. The pragmatist, on the one hand, finds that reflective thought needs to be supplemented by some variety of non-reflective experience. Reflective thought, for example, implies sensible facts, which are simply sensed, and no more. Or, reflective thought itself is a process, which as such is directly felt. Again, certain things, such as time, cannot in their native character be

¹ Bergson: *Creative Evolution*, trans. by A. Mitchell, p. x; cf. p. 49.

² Cf. below, pp. 255, 295-296.

grasped by thought at all, but must be apprehended by instinct. The intellectualist, on the other hand, insists that all things must be identified with what we know of them, and that there is but one way to know, namely, by reflective thought. In short, the real support of the pragmatist polemic against intellectualism is insistence on a non-intellectual variety of knowledge, which is more fundamental and more comprehensive than intellection; which affords, as James expresses it, real "insight" as distinguished from the superficiality and abstraction of intellection.¹

§ 2. Pragmatists offer different versions of this non-intellectual or non-reflective experience. With Bergson it is "the fringe of vague intuition that surrounds our distinct — that is, intellectual — representation." If he hesitates to call it knowledge, it is only because it has more rather than less of cognitive value than knowledge in the usual sense. "The feeling we have of our evolution and of the evolution of all things in pure duration is there, forming around the intellectual concept properly so-called an indistinct fringe that fades off into darkness." And intellectualism forgets "that this nucleus has been formed out of the rest by condensation, and that the whole must be used, the fluid as well as and more than the condensed, in order to grasp the inner movement of life. Indeed, if the fringe exists, however delicate and indistinct, it should have more importance for philosophy than the bright nucleus it surrounds. For *it is its presence that enables us to affirm* that the nucleus is a nucleus, that pure intellect is a contraction, by condensation, of a more extensive power"² In short, intellectual knowledge is surrounded and corrected by intuitive or immediate knowledge. The former is defined and assigned limits by the evidence of the latter.

James alone of pragmatist writers is always willing to refer to the non-intellectual experience as a species of knowledge. As he expresses it in his exposition of Bergson, there is

¹ *Pluralistic Universe*, p. 246.

² *Op. cit.*, pp. 49, 46 (*italics mine*).

"a living or sympathetic acquaintance" with things, distinguished from the knowledge *about* them that "touches only the outer surface of reality." "The only way in which to apprehend reality's thickness is either to experience it directly by being a part of reality one's self, or to evoke it in imagination by sympathetically divining some one else's inner life." If you are to really "know reality," you must "dive back into the flux itself," or "turn your face toward sensation, that fleshbound thing which rationalism has always loaded with abuse"¹

Dewey's opinion would seem to differ from that of Bergson and James, mainly in his strict reservation of the term 'knowledge' for the intellectualized experience. The non-intellectual experience is there in his view as in that of Bergson and James, and it plays substantially the same rôle. "Things are what they are experienced to be"; and knowledge is by no means the "only genuine mode of experiencing" The "knowledge-object" is immersed in "an inclusive, vital, direct experience" There is an "experience in which knowledge-and-its-object is sustained, and whose schematized, or structural, portion it is." Knowing being one mode of experiencing, "the primary philosophic demand [from the standpoint of immediatism] is to find out *what* sort of an experience knowing is — or, concretely, how things are experienced when they are experienced *as* known things."² In short, this extra-cognitive experience is clearly an experience of things *to be*, an experience of things *as* such and such; and thus a revelation of their nature. As with Bergson and James, it affords the light by which the cognitive process itself is circumspected and discounted, and intellectualism denounced as rendering a limited view of reality.

§ 3. Thus far, then, the pragmatist polemic against intellectualism signifies that knowledge commonly so-called,

¹ *A Pluralistic Universe*, pp. 249-252.

² "Reality as Experience," in *Jour. of Phil., Psych., and Scientific Methods*, Vol. III, p. 256; *Influence of Darwin, etc.*, pp. 228, 229.

the knowledge mediated by ideas, is but one way, and that not the most profound way, of knowing things. The essentially practical or instrumental character of mediate knowledge suggests that it is knowledge 'for a purpose,' a knowledge limited by a governing motive. The full extent and native quality of reality, including the ideational or mediating process itself, is to be apprehended only by immediacy, such as sensation or the feeling of life. We must now examine the grounds of this pragmatist contention. We must ask, in other words, why it is that intellectual knowledge is limited, inadequate, and secondary.

In the first place, it is contended that mediation implies immediacy. The mediating relation *between* the idea and its object, always implies the immediate presence of the idea, of the process, and eventually of the object or terminus of the process. "It is in the concrete thing *as experienced*," says Dewey, "that all the grounds and clues to its own intellectual or logical rectification are contained." "Sensations," says James, "are the mother-earth, the anchorage, the stable rock, the first and last limits, the *terminus a quo*, and the *terminus ad quem* of the mind." Or, as he puts it more emphatically, "these percepts, these *termini*, these sensible things, these mere matters-of-acquaintance, are the only realities we ever directly know, and the whole history of our thought is the history of our substitution of one of them for another, and the reduction of the substitute to the status of a conceptual sign"¹

Thus not only is mediate knowledge tested by immediacy, but it is never more than a second best, a mode of knowledge to be adopted in default of immediacy. The best idea will be that which renders its own existence unnecessary by leading to "an actual merging of ourselves with the object, to an utter mutual confluence and identification," — "a completely consummated acquaintance."² This follows

¹ Dewey *op cit*, p 235, James. *Meaning of Truth*, p. 39 (italics mine).

² James. *op cit*, p 156.

from the function of ideas. Their virtue lies in their substitutional and provisional character. They are means of knowing beyond the limits of immediacy; but are valid there only in so far as they refer to possibilities of immediacy. It is not unfair to say that on anti-intellectualist grounds, reality is revealed only when it is actually or potentially present. Whether this be construed as a limiting of knowledge in general or only of one kind of knowledge in behalf of another, is a matter of words. Direct, presentative, immediate experience, in which reality is itself in mind, in which the knower and the known coincide, is more comprehensive, fundamental, and penetrating than the indirect, representative, mediate experience which implies it, refers to it, and is formed out of it.

In examining further the grounds of the pragmatist indictment of intellectualism we come at once upon the question of concepts. Intellectualism is charged with a blind and excessive use of concepts, with an exclusive reliance on them despite the *abstractness* and *artificiality* which vitiate them. This indictment of concepts suggests their distinguishing marks. A concept is abstract in the sense of being a discrimination, separation, and fixation of some limited portion of a wider experience. Being the work of analysis, a concept is clear and distinct. A concept is unambiguous, once the identification has taken place the concept is just what it is identified as being, and can never be anything else. It is discrete and changeless, as distinguished from the unlimited richness, the marginal vagueness, and perpetual flux of sense and feeling. But these virtues are offset by its artificiality. A concept is an instrument, owing its existence and form to its use. As a human artifact it is other than, and in a sense false to, the primitive experience from which it is created and to which it is applied. In other words, a concept is an *idea*, in the pragmatist sense.¹ To this disparagement of concepts as abstract and artificial we must now turn.

¹ Whether all ideas are concepts is not clear, and for our immediate

§ 4. James bases his criticism of concepts mainly on their abstractness. He repeatedly emphasizes their selective or partial character. This would not render them false if it were understood, and due allowance made for it. But it is customary for intellectualists to use concepts as though they were exhaustive of their objects, and to deny to the object whatever is not contained in the concept. This is what James calls "*vicious*" intellectualism or abstractionism. He describes it as follows: "We conceive a concrete situation by singling out some salient or important feature in it, and classing it under that; then, instead of adding to its previous characters all the positive consequences which the new way of conceiving it may bring, we proceed to use our concept *privatively*; we reduce the originally rich phenomenon to the naked suggestions of that name abstractly taken, treating it as a case of 'nothing but' that concept, and acting as if all the other characters from out of which the concept is abstracted were expunged."¹

In other words, "vicious intellectualism" proceeds as though a conceptual truth about a thing were the exclusive truth about the thing; whereas it is true only *so far as it goes*. Thus the world may be truly conceived as permanent and unified, since it is such *in a certain respect*. But this should not lead us, as it has led certain intellectualists, to suppose that the world is therefore not changing and plural. We must not identify our world with one conception of it. In its concrete richness it lends itself to many conceptions. And the same is true of the least thing in the world. It has many aspects, none of which is exhaustive of it. It may be taken in many relations or orders, and be given different names accordingly. As it is immediately presented it contains all these aspects, as potentialities for

purpose it is not necessary to determine. See below, pp 231-232. The best discussion of the matter is to be found in James *Some Problems of Philosophy*, pp 48 sq.

¹ *Meaning of Truth*, p 249 (italics mine); cf *ibid.*, p. 147; and *Pluralistic Universe*, p 218. Cf also below, p. 365

the discriminating and abstracting operation of thought. "Vicious intellectualism" thus rests on the errors that I have already referred to as 'exclusive particularity' and 'definition by initial predication': the false supposition that because a thing has one definable character, it cannot also have others; and that because it has been named first for one of its aspects, the others must be reduced to it or deduced from it ¹

Now the fault of "vicious intellectualism" evidently lies in the misuse of concepts, and not in the nature of the concepts themselves. There is nothing to prevent our supposing that the abstractness of single concepts can be compensated for by the addition of further concepts, or by some conceptual system in which the presence and interrelation of many concepts is specifically provided for. In this case the remedy for the short-comings of concepts would be more concepts. But the indictment which pragmatism finds against intellectualism is much more serious than this. It is charged that concepts are such that they can never serve as means of knowing the native and salient characters of reality. To grasp these we must abandon concepts altogether, and turn to the illumination or inspiration of immediacy. To this charge, that there is an irremediable cognitive flaw in concepts, we must now turn.

§ 5 Of eminent contemporary writers belonging to the pragmatist school in the broad sense, Bergson is the most radical 'anti-intellectualist' ² In his opinion intellect not only divides and separates reality, thus replacing its concrete fulness with abstracted and partial aspects; but is doomed to failure, however far its activities may be carried. Intellect cannot, in short, correct itself, and atone for its own short-comings.

The cause of this irretrievable failure lies in the fact that

The Failure of
Concepts to
Grasp Reality
Radical Anti-
Intellectualism

¹ See above, pp 126-128

² Although his view is expounded with evident approval by James, in *A Pluralistic Universe*, Lect. VI.

intellect is essentially the instrument of action. For the purpose of action it is necessary to specify and fixate some present aspect of the environment. The object of action must be distinguished and held by the attention. Through the repetition of such attitudes the intellect elaborates a scheme or diagram in which the several terms of analysis are correlated. They remain distinct and external, but are woven by relations into a system, which is like its component terms in being stereotyped and fixed. The pattern of all such systems is geometry, the most perfect expression of the analytical method. The sign of the intellect's handiwork is spacial "juxtaposition" and arrangement, the static coordination of discriminated elements. In vain, then, does the intellect seek to correct itself — for the further it proceeds the more thoroughly does it reduce reality to this form.

And it is this form itself, and not any specific or incomplete phase of it, that is foreign to the native, aboriginal quality of reality. The latter abides, not in fixity, but in fluidity, not in sharpness of outline, but in adumbration, not in external juxtaposition, but in "interpenetration;" not in discreteness, but in continuity, not in space, but in time. The helplessness of the intellect to escape its own inveterate habits appears most strikingly in its treatment of time. For it spacializes even this, conceiving it as a linear series of instants, whereas real time is an "*enduring*" (*durée réelle*), a continuous and cumulative history, a "growing old." And this real time we cannot *think*, we must "*live* it, because life transcends intellect" ¹

A radical anti-intellectualism may serve as the ground of an attack upon science, as is illustrated by the views of the French pragmatist LeRoy, and the Italian pragmatist Papini. "Science consists only of conventions, and to this circumstance solely does it owe its apparent certitude; the facts of science and, *a fortiori*, its laws are the artificial work

¹ Bergson's *Creative Evolution*, trans. by A. Mitchell, pp. xiv, 46. Cf. Ch. I, *passim*.

of the scientist; science therefore can teach us nothing of the truth; it can serve only as a rule of action."¹ But there is a sequel. For with LeRoy and Papini, as with Bergson, the failure of science is compensated by an immediate sense of the power of life. Science manufactures concepts, which misrepresent reality; but the life which science serves, the creative agency which forges and uses the instruments, is known to itself by instinct and faith.

§ 6. This wholesale indictment of the intellectual method rests, I am convinced, on a misunderstanding of that method. It will be worth our while to seek more light on the matter. In the first place, as has been already suggested,² neither Bergson nor James is clear as to whether a concept is to be distinguished by its function or by its content. Is 'concept' the same as 'idea,' or is it a special class of ideas? This question is of crucial importance. For if 'concept' is only another name for 'idea,' and if an idea is essentially a function or office, and not a content, then the failure of concepts must mean simply the failure of the ideating or mediating operation of thought. But this operation, according to the pragmatist account, is essentially a mode of access to immediacy. The more it is perfected the more unerringly it leads us into the presence of its object. To prove that intellect is essentially instrumental, and then to attack it in behalf of the very end for which it is useful, would be a strange procedure. In fact the anti-intellectualist perpetually employs intellect in this sense, even with reference to 'reality.' He uses words and figures of speech which he hopes will conduct the reader or hearer to the immediate experience in which 'reality' is revealed. A pragmatist can have no ground for maintaining that there is any reality which cannot be represented, for he means by repre-

¹ Quoted from an exposition and criticism of LeRoy by Poincaré, in *The Value of Science* (trans. by Halsted), p. 112. See also above, pp. 93 ff. For Papini, cf. below, p. 264.

² See above, p. 227.

The Failure of
Anti-intellec-
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sentation only a pointing or guiding, for which anything may serve. Whatever is experienced or felt can be represented in this sense, because it is necessary only that it should have a locus or context to which one may be directed.

We may suppose, then, that what the anti-intellectualist attacks is not the idea as such, but a certain class of ideas; such, for example, as the logical and mathematical ideas, 'term,' 'line,' etc. But 'term' and 'line' are ideas only when *used* in a certain way. In themselves they are simply characteristic bits of experience. They may be immediately known or presented, as well as used in discursive thought. Even 'abstractions' may be apprehended by a direct act of discrimination, and it is only in such direct apprehension that their specific character is revealed. It cannot be claimed that such bits of experience as 'term' and 'line' are peculiarly ill-fitted to serve as ideas, because, as we have seen, the content of an idea is irrelevant. Any bit of experience will do, as is best illustrated by the case of words. In short the fault, if there be any, cannot lie in the intellectual use of these elements; it must lie, not in their employment as ideas, but in their inherent character. The anti-intellectualist polemic must mean that reality is not such as 'term' and 'line'; or that these characters are somehow contradicted and overruled by the dominant characters of reality, such as continuity and life.

§ 7. But this contention rests, I think, on another misunderstanding. There is an inveterate liability to confuse a symbolized relation with a relation of symbols. It is commonly supposed that when a complex is represented by a formula, the elements of the complex must have the same relation as that which subsists between the parts of the formula; whereas, as a matter of fact, *the formula as a whole* represents or describes a complex other than itself. If I describe *a* as "to the right of b," does any difficulty arise because in my formula *a* is to the left of *b*? If I speak of *a* as greater than *b*, am I to assume that because my

The Con-
fusion between
the Relations
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and the
Relations
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symbols are outside one another that *a* and *b* must be outside one another? Such a supposition would imply a most naïve acceptance of that very "copy theory" of knowledge which pragmatism has so severely condemned. And yet such a supposition seems everywhere to underly the anti-intellectualist's polemic. The intellect is described as "substituting for the interpenetration of the real terms the juxtaposition of their symbols"; as though analysis discovered terms, and then *conferred* relations of its own. Whereas, as James himself has been at much pains to point out, terms and relations have the same status. Terms are found *in* relation, and may be thus described without any more artificiality, without any more imposing of the forms of the mind on its subject matter, than is involved in the bare mention of a single term.¹

It is this misunderstanding which underlies the anti-intellectualist's contention that continuity cannot be described. "For," says James, "you cannot make continuous being out of discontinuities, and your concepts are discontinuous. The stages into which you analyze a change are *states*, the change itself goes on between them. It lies along their intervals, inhabits what your definition fails to gather up, and thus eludes conceptual explanation altogether."² I can understand this argument only provided the author assumes that the intellectualist tries to explain continuity by *adding concept to concept*. The successive and discontinuous *acts of conceiving* are then held to be contrary to the continuity of the subject matter. But the assumption is incorrect. A line, for example, may be conceived as a class of positions possessing inter-relations of direction and distance. This conception may be represented by the formula, *a . . . b . . . c . . . n . . .* One may then add the statement that between any two posi-

¹ Bergson *Time and Free Will*, trans. by F. L. Pogson, of *Les données immédiates de la conscience*, p. 134, James *A Pluralistic Universe*, Appendix A

² James *op cit.*, p. 236

tions such as a and c, there is a third position b, which is after a and before c; thus expressly denying that there is the same hiatus between the positions of the line as between the symbols of the representation. The use of the symbols, a, c, etc., indicates the manifoldness and serial order of the positions, and the statement defines their 'compactness.'¹ With such a formula and such a statement, one may *mean* continuity, despite the fact that the symbols and words are discrete. The word 'blue' may *mean blue*, although the word is not blue. Similarly, continuity may be an arrangement meant by a discontinuous arrangement of words and symbols.

§ 8. In the third place, the anti-intellectualist polemic is based upon the misconception that whenever concepts are used they must be used "privatively," in James's sense. In other words, it is taken for granted that all intellectualism must be "vicious," or blind to its own abstractness. James, as we have seen, distinguishes this view as one variety of intellectualism. To conceive a thing as a, and then assume that it is only a, is to be "viciously" intellectual.²

But it is evident that provided one recognizes that to be a does not prevent a thing's being also b, c, etc., one may be innocently or even beneficently intellectual. And this possibility, Bergson, at any rate, appears to overlook. Thus he constantly argues as though the use of the relational logic involved *the reduction of everything to it*. The analytical method does imply that reality consists of terms and relations. It does not, however, imply that this bare term-and-relation character is *all there is to it*. Thus, blue is different from red, which is a case of $t^1 (R) t^2$. But in the concrete case, the bare logical term-character t is united first with one quality and then with another; while R is not merely relation in general but the specific relation of

¹ Cf Russell *Principles of Mathematics*, p. 296

² See above, pp. 228-229

'difference.' And similarly the formulas of mathematics, mechanics, physics, etc., while they are cases of logical systems, have each their special superadded and distinguishing characters.

The abstract logical system is non-temporal; but a temporal system may nevertheless be *a case* of a logical system, provided the time character be introduced. Hence it is absurd to say, as Bergson says, that "when the mathematician calculates the future state of a system at the end of a time t , there is nothing to prevent him from supposing that the universe vanishes from this moment till that, and suddenly reappears. It is the t -th moment only that counts — and that will be a mere instant. What will flow on in the interval, that is to say, real time, does not count, and cannot enter into the calculation."¹ I can make nothing of this unless the author is regarding t merely as a *number*. But as a matter of fact t is a number of units of *time*, hence an interval, or extended flow; and multiplying this factor into the formula means that the whole process has continued *through* that interval — it means that the lapse of time is counted, is expressly brought into the calculation.

Or, consider the same author's contention that to conceive time is to spacialize it. Again he is misled by supposing that because time is conceived as orderly, it is therefore *nothing but order*. Such an intellectualism would indeed be vicious. Bare logical order *is* static; and can never of itself express time. But it is an utterly different matter to regard time, like space and number, as a *case* of order, having the specific time *quale* over and above the properties of order. 'Position,' 'interval,' 'before' and 'after,' are then to be taken in the temporal sense; and the terms of the series are to be taken, not as bare logical terms, still less as spacial points, but as *instants* possessing a unique time-character of their own.

¹ *Creative Evolution*, p. 22. For a fuller discussion of Bergson's theory of time, cf. below, pp. 255-261.

§ 9. Radical anti-intellectualism betrays, in short, a misapprehension of the analytical method. This method means simply the discrimination and specification of the detail of experience. It has led to the discovery of certain elements and relationships that possess a remarkably high degree of generality, such, e.g., as those of logic and mathematics. But while these elements and relationships, because of their generality, serve to make things commensurable on a comprehensive scale, and are consequently of a peculiar importance in knowledge, it does not follow that intellectualism aims to abolish everything else. That which *has* logical form is not *pure* form.

Furthermore, it is entirely incorrect to suppose that analysis imposes the relational and orderly arrangement regardless of the subject matter. The analytical method is neither an accident nor a prejudice. It arises from the fact that the subject matter with which science and philosophy deal is complex. And this is virtually admitted in every reference to it which anti-intellectualistic writers make. 'Continuity,' 'duration,' 'activity' and 'life' present, even in the most immediate experience of them which it is possible to obtain, an unmistakable multiplicity of character. They may be divided, and their several characters abstracted and named in turn; and simply because they *contain variety*. The anti-intellectualist is apparently ready to admit their multiplicity, but balks at admitting their "distinct multiplicity."¹ But "distinctness" and "indistinctness" are psychological and not ontological differences. An "indistinct multiplicity" is simply a multiplicity that is as yet but imperfectly known — a distinct multiplicity qualified by an incompleteness of discrimination.

Or is the anti-intellectualist troubled by the consideration that the concepts of analysis are not exact *enough*; that they over-simplify nature by trying to express it in

¹ Bergson *op cit*, p. xiv

terms of a few broad types? Thus it may be contended that the boundaries of bodies are never absolutely straight or circular, or that no orbit is perfectly elliptical. But note what this criticism implies. It is based either on the fact that there is a sensible discrepancy between the form attributed to natural bodies in exact science, and the actual form of these bodies; or on the presumption that such a discrepancy would appear were our methods of study to be improved. In either case, the discrepancy in question is an analytical discrepancy, a difference of the same definite character as the terms compared. If natural boundaries or orbits are not of a relatively simple geometrical character, then it must be because they are of a more complex geometrical character; if not a straight, then a broken line, if not circular or elliptical, then curved in some other way. Such considerations as these, therefore, do not tell in the least against the analytical method, or cast doubt on the relational structure of reality.

§ 10. But anti-intellectualism is involved in a more serious error. Not only does it misunderstand the view which it attacks, but it puts forth a claim of its own which is unfounded, the claim, namely, to the immediate apprehension of a fused and inarticulate unity. It exploits the common error of 'pseudo-simplicity.' This error consists, as we have seen, in projecting a verbal or subjective simplicity into the object. The single word 'life,' e.g., is used to refer to the complex thing, life. It is then assumed that behind the various characters of life, or infusing them, there must be a corresponding unity. Or, at the outset of inquiry, life is a problematic unity, a bare *that*, a something to be known; and it is assumed that this simple *quale*, this merging of elements, not-yet-but-to-be-distinguished, must somehow be among the elements themselves.

There are two ways of unifying experience. One way is to carry analysis through, and discover the connections of

The Supposed
Superiority of
the Immediacy
that Precedes
Analysis

the parts, and the articulate structure of the whole. The other is to reverse the operation, to *carry it back* to its vanishing point — to the bare word or the bare feeling of attention. In the second case the experience is simplified — by the disappearance of the object! A perfect simplicity, an ineffable unity, is attained at the point where the object drops out altogether. But then knowledge has ceased; and the experience, what there is of it, is of no cognitive significance whatsoever.

Thus Bergson says: "The more we succeed in making ourselves conscious of our progress in pure duration, the more we feel the different parts of our being enter into each other, and our whole personality concentrate itself in a point."¹ What Bergson is here describing is, I am convinced, the disappearance of cognition into an experience which is not an experience of anything at all. Such a unification may be obtained by falling asleep, or by auto-hypnosis. It throws no light whatever on the nature of anything. My experience of life has dissolved; but nothing follows concerning the nature of life. I have simply closed my eyes to it. I have blurred and blotted out my knowledge of life, but life is not therefore blurred or extinct. In the twilight all things are gray; in ignorance all things are simple. Bergson speaks of the "feeling of duration," as "the actual coinciding of ourself with it"; and this, he says, admits of degrees. But I am not more alive when I feel duration than I was before when I thought it. The difference is that, whereas I formerly knew duration, or something of it, now I know comparatively nothing; I simply *am* duration. Duration itself is neither more nor less complex than it was before; my knowledge only has been simplified — to the point of disappearance. Bergson speaks of an instinctive sympathy which, if it "could extend its object and also reflect upon itself," "would give us the key to vital operations."² But I believe that it is safe to say that in proportion as there is reflection

¹ *Creative Evolution*, p. 201

² *Ibid*, pp. 200, 176.

upon instinct, its complexity is manifest; and that in proportion as instinct is simple it has escaped experience altogether, and is, so far as cognition is concerned — nothing.

§ 11. The pragmatist critique of intellectualism, like the pragmatist theory of truth, tends to assume one or the other of two forms. Using Dewey's term "immediatism" to express this pragmatist doctrine positively rather than negatively, we may say that there is a subjectivistic or idealistic version, and a realistic version, of immediatism.

The crucial issue upon which the idealistic and realistic versions of immediatism divide is whether the activity of the intellect is creative or selective. Does the intellect *generate* concepts, or does it *discover* them? If we are to judge from the *Creative Evolution*, Bergson regards the intellect as an artificer. In other words, ideas, things, and objects express, not the environment, but the agent. It is by no means clear that this is consistent with the Bergson view, that intellect is a means of adaptation. "If," as he himself says, "the intellectual form of the living being has been gradually modelled on the reciprocal actions and reactions of certain bodies and their material environment, how should it not reveal to us something of the very essence of which these bodies are made?" But this query does not prevent Bergson from deriving "intellectual form" from the intellect itself. The origin of it is to be looked for "in the structure of our intellect, which is formed to act on matter from without, and which succeeds by making, in the flux of the real, instantaneous cuts, each of which becomes, in its fixity, endlessly decomposable. . . . *This complexity is the work of the understanding.*"¹ In other words, the *relational texture*, the *grain* of things, is generated by intellect. Given matter, not-yet-intellectualized, is pure flux, in its own substance as simple, smooth, and undivided as the life which acts on

¹ *Ibid*, Introduction, p xi, p 250 (italics mine).

it — the life of which it is but the “inverse” movement. According to this view, then, to conceive is to bring about the existence of that which is called concept. Conceptual discreteness is the derivative of the pure activity of intellect, and is in no sense contained in that upon which intellect operates.

§ 12. According to the realistic version of immediatism, on the other hand, the intellect discovers, but does not make, concepts. This is the view that is on the whole consistently maintained by James. Concepts are not merely functions of the intellect, they constitute a “coordinate realm” of reality. “If we take the world of geometrical relations, the thousandth decimal of π sleeps there, tho’ no one may even try to compute it.” “Philosophy must thus recognize many realms of reality which mutually interpenetrate. The conceptual systems of mathematics, logic, æsthetics, ethics, are such realms, each strung upon some peculiar form of relation, and each differing from perceptual reality in that in no one of them is history or happening displayed. *Perceptual reality involves and contains all these ideal systems and vastly more besides.*”¹ The crux of the matter lies in this last statement. Reality is not *other* than the conceptual order, but *more* than the conceptual order. Intellect is an organ, not of fabrication, but of “discernment,” a power men have “to single out the most fugitive elements of what passes before them . . . aspect within aspect, quality after quality, relation upon relation.”²

When thus construed, pragmatism’s account of intellect is consistent with its general naturalistic grounds. Concepts work, because the environment is presented and displayed in them. Since nature has logical and mathematical properties, it is expedient to act as tho’ it had;

¹ James *Meaning of Truth*, pp 42 (note), 203; *Some Problems of Philosophy*, pp 101-102 (italics mine) Cf also *op. cit.*, p. 56; *Pluralistic Universe*, pp 339-340 (note)

² James *Some Problems of Philosophy*, pp 51, 52.

while an intellect that was fatally predestined to falsify the environment would be as misleading to action as it would be inherently arbitrary and meaningless. And this realistic version of concepts is entirely consistent with a censure of their blind and uncritical use. Because nature is logical and mathematical, it does not follow that it is *merely* logical and mathematical. Such an intellectualism is vicious indeed. The abstracting of *some* characters of reality is beset by a characteristic danger, the danger of ignoring the rest. This follows from the fact that intellect is *selective*; it in no way implies that intellect is creative.

It is also true that in a sense the perceptual world is richer than the conceptual, since the latter is abstracted *from* it, leaving a residuum behind. James, it is true, goes further than this, and contends, with Bergson, that there are some properties of reality, the dynamic or temporal properties, which cannot be conceived. But this is due, I think, to a misunderstanding.¹ If to conceive is not to alter, but only to *distinguish*, then conceiving is not contrary to any property; to mention a property with a view to showing its inconceivability is to conceive it. And all properties stand on the same footing with reference to the function of mediation. All may be known mediately; but to know them mediately is only an indirect way of knowing them immediately. This is as true of a mathematical triangle, which is mediately known by means of these words, as of color, life, or anything else.

When corrected in the light of these considerations, the realistic anti-intellectualism of James escapes the verbalism and abstractionism of "vicious intellectualism," without that discrediting of analysis and lapse into uncritical intuitionism—that dissolution of order into chaos, which marks an even more vicious immediatism.

¹ *Ibid*, pp. 81, 104; cf. above, pp. 231 ff.

CHAPTER XI

PLURALISM, INDETERMINISM AND RELIGIOUS FAITH

§ 1. WITH pragmatism as a theory of knowledge — a definition of truth, and a critique of intellectualism, there is allied a more or less clearly defined metaphysics. While this metaphysics is by no means systematic, it is distinct and characteristic enough to afford an interpretation of life, and even a religion. Since pragmatism, like idealism and realism, is primarily a theory of knowledge, and a metaphysics only by implication, we shall do well to follow this logical order in our exposition.

Pluralism as the Sequel to Empiricism
The Additive Character of Knowledge

(As furnishing the basis for a metaphysics and philosophy of religion, pragmatism may best be summed up by the term 'empiricism.' [Pragmatism is empirical, in the first place, in that it limits the term 'knowledge' to the particular cases of human knowledge that may be brought under observation. ¶ Its theory of knowledge is a description of the manner in which you and I know, in this or that concrete situation. ¶] This is both the only knowledge which can profitably be in question, since it is the only knowledge that can be examined; and also the only knowledge on which we can count. Every theory that may be held is some particular body's particular theory. Even a theory concerning infinite or divine knowledge is first of all your theory or mine. And it follows that unless human knowledge is to be credited, we must be sceptics. In other words, if we exclude the sceptical alternative, and say that we mean nothing more by knowledge than the most reliable knowledge available, then we must identify knowledge with human knowledge. Such is knowledge — for better

or for worse. No hypothetical knowledge can be more infallible or more certain than the processes of that human mind which defines, proves, and believes it. It follows that it is possible to know, as fully as it is possible to know at all, *a limited portion of reality*. If one were to assert that it is impossible fully to know anything without knowing everything — then that assertion itself would be discredited. It is itself a case of partial knowledge and is entitled to no special privileges.

Now if it is possible to know parts of reality without knowing all, it follows that such parts of reality are self-sufficient. If knowledge can be additive, if things can be known one at a time, then the things known must possess their natures independently. Thus one can know the laws of number, without knowing the date of Napoleon's birth. The latter knowledge, when obtained, is simply to be added to the former without modifying it. But this is equivalent to saying that Napoleon's birth is not a part of the nature of number. It is not asserted that one is not related to the other, but only that it is not germane, does not enter into its definition. And this, when generalized, is what is meant by *pluralism*. (According to the opposite, or monistic, view, the *all-relationship*, the relation of each to all, is definitive; according to pluralism it is accidental. According to monism the *universal interrelationship* determines the essential nature of every item of being; according to pluralism certain limited relations sufficiently determine the nature of each thing, the residual relations being superfluous and unnecessary. According to monism the totality is more unified than the parts; according to pluralism the parts severally are more unified than the totality.¹)

(Pragmatism thus credits finite knowledge, and asserts that knowledge grows from part to whole.) Knowledge is cumulative; omniscience would be a sum of knowledge,

¹ For pragmatist definitions of pluralism, see James *Pragmatism*, Lect IV On the "monistic theory of truth," cf below, p. 323.

a knowledge of a and b, in which the knowledge of *a* and *b* severally is prior to the knowledge of them together. And pragmatism infers that a universe in which this is possible is a universe in which there is at least some irrelevance or casual conjunction.

§ 2. (But the empirical method contributes more direct evidence for pluralism in that such casual conjunctions are actually perceived. James, in particular, has emphasized the existence of 'external' relations.¹)

(Rationalism singles out and emphasizes the relations of logical implication and organic unity.) Such relations are not to be denied; and it is in the interest of knowledge to discover them wherever they can be found. Indeed, the discovery of such relations may even be said to be the principal motive of thought. (But a thorough-going empiricism will admit that such relations are never found except in the company of other relations. "Everything you can think of," says James, "however vast or inclusive, has on the pluralistic view a genuinely 'external' environment of some sort or amount. Things are 'with' one another in many ways, but nothing includes everything, or dominates over everything. The word 'and' trails along after every sentence."²) In other words, internal definitive relationships are discriminated from casual relationships.) Science distinguishes in connection with any subject of inquiry those things which are necessarily or functionally related, and which must therefore enter into the explanation, from those things which are there, and in some sense related, but which are negligible. Every definition, every determinate system, is obtained by exclusion as well as inclusion (The skilful scientific mind is the mind that readily fastens upon that which is germane, to the exclusion of that which is irrelevant.) And empiricism is simply the willingness to accept facts, whether they

¹ Cf., e.g., *Pluralistic Universe*, pp. 321-326, 358-361. Cf. below, p. 372.

² *Op. cit.*, p. 321.

be conjunctive or disjunctive. It recognizes behind the intellectual preference for unity, the more fundamental cognitive demand that things should be taken as they are — whether they satisfy that preference or disappoint it.)

(Empirically, then, the world is a mixture of oneness and manyness, of relevance and irrelevance, of disjunction and conjunction, of essence and accident. On empirical grounds no other account is even plausible.) And this has virtually been recognized even by the opponents of pluralism. Monism has not been offered as a faithful description of the world, judging by appearances, but as a necessary ideal that must be affirmed of the world *despite* appearances. The issue then turns upon the considerations already set forth in the discussion of absolutism.¹ Is the absolute world-system a *definite* ideal; and can it be shown to be implied in the act of knowledge, so that to doubt it is to affirm it? Pragmatism concludes, as we have been led to conclude above, that such a system is not only a dogma, but a vague dogma. As a sentiment it is intelligible; but as a hypothesis it is not only unverified but unverifiable. Owing to the extreme abstractness of the terms in which it is formulated, in so far as it is formulated at all, no crucial experiment can be devised which would decisively determine its truth or its falsity. Unformulated, it is a feeling for unity, a love of order, a "cosmic emotion." Thus 'the absolute' is either a superficial commonplace, to the effect that the world is one and interrelated, and is what it is; or a symbol of mystical reverence.

(To find the native and distinguishing characters of *this* world, one must turn away from logical and mystical unities, and observe it in its characteristic physiognomy. It is a world that cannot be summed up in superlatives, without oversimplification or confusion. It has unity, but also variety; it is orderly, but only in a measure; it is good, but also in parts bad and indifferent. For better or for worse, it is just this homely, familiar old world,

¹ See above, Ch. VIII.

with some rhyme and some reason in it, but with much that is arbitrary and inconsequential. Such opportunity and hopefulness as it affords are limited; but they cannot be enjoyed more by exaggerating them. The rational life and true religion begin, as the natural life begins, not by taking the world to be the best, but by taking it *as it is*, and *making* the best of it.)!

§ 3. It is evident that pluralism is readily convertible into a philosophy of religion. As a *Weltanschauung*, it evokes a characteristic practical response and inspires a characteristic faith.

Pluralism as a
Philosophy of
Religion

(In the first place, it applies directly to the problem of evil. On monistic grounds, the world must be approved or condemned as a unit. It is what it is, *through and through*; every characteristic that it manifests is implicated in every other characteristic.) The meaning of the part must be sought in the whole. Such a theory overrules that empirical estimate of nature and of affairs which is the guide to action. The difference between goodness, evil, and indifference, which practice sharpens, is, in this type of theory, dulled. (In a monistic philosophy *real* goodness is such as implies evil; *real* evil such as implies good; and *real* value and *real* indifference are reciprocally implicative.) In other words, the real nature of each is revealed in its connection with the others. (In practice, on the other hand, the real nature of each is intrinsic, the relation to the rest being accidental, circumstantial, or derogatory.)

And this practical version of the matter constitutes the pluralistic philosophy of evil. It is not denied that good, evil, and indifference are related. It is not denied that value may come of indifference, or even good of evil. But it is denied such relations define and explain the terms. It is denied that value must be so defined as to embrace indifference, or good so defined as to provide for evil. Hence goodness is not to be *charged with* or *judged by* the evil that attends it. The pure nature of goodness is apprehended in proportion as evil is left out of the account.

An account of goodness with evil left out would not, it is true, be adequate to life; but it would be adequate to goodness. The mixture of the two — temptation and struggle, calamity and discipline, sin and repentance, is true to the historical drama of existence; but the nature of goodness itself is only confused by the admixture of its opposite.

The supposition that goodness must be defined in terms of life, and life in terms of the universal reality, has no support, save the monistic dogma. It rests on the more fundamental presupposition that the whole context must enter into the definition of each thing. Because goodness is opposed to evil and indifference, because the achievement of goodness is in certain cases conditioned by evil and indifference — it is inferred that goodness must *consist* in these. (It may even be urged that because the pragmatist glorifies the humanization of nature and the victorious battle with evil, he is therefore a good monist; having reduced nature to humanity and good to evil.¹) Nothing could more unmistakably betray the monistic bias. To a mind habituated to monism, it is inconceivable that a thing should have any relation whatsoever to the subject of discourse, or should even be mentionable in the same connection, without entering into its definition and explanation. But does it follow that because nature can be humanized, this sequel is the secret of its existence; or that because a virtue can be made of necessity, that the necessity arose in order to be made a virtue of? It would be as reasonable to account for gold in terms of dollars; or to argue that because a man may be lifted from the mire, therefore mire is essentially that from which a man may be lifted, and hence a condition of the higher life.

Now it is this difference, which is so easily confused, and which may seem so slight as to be negligible, that nevertheless eventually brings pragmatism and monistic

¹ It is in this sense that "Religious Idealism regards Pragmatism as an Idealism in the Making." Cf. W. R. Boyce Gibson, *God With Us*, p. 189; and Ch. X, *passim*.

idealism into flat opposition. (For pragmatism, the good is, as a matter of fact, related to evil, but is not necessarily so; it does not *derive its meaning from* the relation. For a monistic idealism, the circumstance of evil is *essential* to good.) And no two religions could be more discordant, more incommensurable, than those which spring from these two theories. From the one springs the practical optimism, or meliorism, which stakes its hope on the chance that the world may be made better; from the other springs the contemplative or quietistic optimism, which consists in the faith that the world is best. For the former the realization of goodness is a future contingency; for the latter it is the eternal and necessary reality. For pragmatism the perfecting of the world is by elimination, there must be "real losses and real losers"; for a monistic idealism the perfection of the world lies in its all-preserving totality. For pragmatism, "evil is that which resists the evolution of the world, and fights a losing battle against the tendencies of things"; for a monistic idealism evil is a flavor to the sauce, or a rôle in the drama, which, though it is subordinate, cannot be dispensed with.¹)

The contrast appears finally and most vividly in the corresponding conceptions of God. (For pragmatism, God is a part and not the whole. He is beneficent, without its being necessary to judge his beneficence by all the works of nature and life. "As God is not all things, He can be an 'eternal (i. e. unceasing) tendency making for righteousness,' and need not be, as on all other theories He must be, the responsible Author of evil."²) In short, pragmatism justifies the ordinary procedure of the religious consciousness ; for the religious consciousness is ordinarily selective and discriminating, construing God's nature in terms of goodness in the specific and exclusive sense, and proving

¹ James *Pragmatism*, p. 296, cf. Lect. VIII, *passim*; and "The Dilemma of Determinism," and "Is Life Worth Living?" in *The Will to Believe*; F. C. S. Schiller *Riddles of the Sphinx*, third edition, p. 353. For the monistic theory, cf. also above, p. 182.

² Schiller: *op. cit.*, p. 350.

him by an appeal to some, but not all, of the evidences of reality. (In a monistic religion, on the other hand, God is "All," and his goodness must be interpreted accordingly.¹ He is such as mechanical nature, and evil, as well as the good contrasted with these, prove him to be. He is the universal life, the promiscuous totality of things, exalted into an object of worship;) but not, as Plato would have said, without disloyalty to the moral will. For it is not possible in the long run to reverence one thing and serve another. And a worship which eulogizes the neutral mid-world of 'the spiritual life,' of 'struggle,' and of 'victory,' and erects it into the supreme object of admiration must, in the long run, convert moral effort into a conscious pose, and its Everlasting No into stage heroics. ♣

§ 4 (Pragmatism implies pluralism, and this, as we have seen, affords a characteristic version of evil and of God.)

Indeterminism as the Sequel to Pluralism But pragmatists are not only pluralists; they are also indeterminists, and find in their indeterminism additional ground for a philosophy of religion. As will shortly appear, indeterminism is a more ambiguous and doubtful doctrine than pluralism, and may be approached in several ways.

(In the first place, indeterminism may be regarded simply as an aspect of pluralism. The latter doctrine emphasizes both manyness and irrelevance; indeterminism singles out and emphasizes irrelevance. It means that there are relations which are not determinative; that there are juxtapositions of things and events which are actual but not necessary.) (In a narrower sense, indeterminism means that human individuals, and human actions, are disjunctively as well as conjunctively related to their environment or context. There is something in a man or in his deed that is not deducible from anything beyond. It is next to other things, along with them, related to them in many ways, but without following from them.)

This is, I think, the meaning of James's "genuine possi-

¹ Cf., e.g., Boyce Gibson, *op. cit.*, Ch. X.

bilities."¹ It is primarily a denial of the counter-thesis that the world is pervaded by implication. There are arbitrary transitions as well as necessary transitions. In other words, there are situations of the type $a + b + c$, where c is not implied in $a + b$, and is not deducible therefrom. In such a situation, it is true to say that in respect of $a + b$, something other than c , such as d , is possible; or, that either c or d is consistent with $a + b$. After the fact, $a + b + d$ is as reasonable as $a + b + c$. It cannot be said that either c or d is exclusively determined by $a + b$, although it may be said that some more general character, m , of which c and d are the only instances, is thus determined, so that the possibilities are confined to c and d . In this sense, then, multiple possibility follows from pluralism.

§ 5. Indeterminism in a still narrower sense, follows from the application of this general principle to time. In discussing the relation of pragmatist metaphysics to the concept of time, it is important to make a distinction. For there are really two issues involved.

(In the first place, pragmatism, like naturalism, like all empirical philosophies, maintains that time is a fundamental property of existence. Thus pragmatism is opposed to all theories which claim to deduce time from something else; for example, from the nescience and relativity of the human mind. According to such a view, the temporal aspect of things is due to the modification of finite subjectivity.) To reach truth means to escape this limitation and see things *sub specie eternitatis*. Thus according to the view held by Parmenides, Plato, Spinoza, and others, time is unreal, in the sense that it is one of the appearance-characters which reflective knowledge eliminates. Or time may be deduced from some higher logical

¹ Cf. "The Dilemma of Determinism," in *The Will to Believe*, pp. 155, 156, Schiller. *Studies in Humanism*, p. 404, Bergson. *Time and Free Will*, pp. 189-190.

or ethical category, as is attempted by some modern idealists. In this case, time is real, but only so far as it is a manifestation of some higher principle. Sequence is incidental to the dialectic of thought, or to moral progress.

(Pragmatism, on the other hand, insists upon the original and irreducible character of time, as well as upon its peculiarly important part in existence.) Time is more, and not less, original than dialectic and progress, since the latter contain the specific characters of sequence and change, and add further characters to them. And existence is the manifold that is in time, whether it exhibits these other characters or not. So that (instead of saying that existence is a dialectical or ethical unity, embracing temporality, one must say that existence is the series of temporal events, with whatever of dialectical or ethical unity may happen also to be added)) This, then, is the first issue; and the position of pragmatism is entirely unambiguous.

But it is a second issue, and not this issue, that raises the question of indeterminism. (*How far is the series of temporal events determined?*) The considerations just adduced afford no answer to this question. It is entirely possible to maintain the existential priority of time, and be a vigorous determinist as well. It is precisely such a blend of doctrines that is characteristic of naturalism. (Pragmatism asserts "a really evolving, and therefore as yet incomplete, reality." ¹ But so does naturalism. And the latter theory finds no difficulty in uniting with this assertion the further assertion that the evolution in question is strictly determined. The future cosmos is not yet; but will unfold, coincidently with the passage of time, according to the laws of physics.))

Bergson makes much of the contention that "deep-seated psychic states occur once in consciousness and will never occur again." ² The real temporal flux, revealed in the inner life, is a growing old, in which no phase can recur,

¹ Schiller *op cit*, p 392

² Bergson *op cit*, p 219 Cf also *Creative Evolution*, pp 1-7.

because each phase is a résumé of the past. But this description would apply perfectly to a rigidly mechanical nature. It is entirely consistent with the mechanical theory that time is the 'independent variable.' The formulas of mechanics contain the time-variable, which means (as Bergson does not appear to recognize) *lapse* of time, together with other variables which are functions of the time-variable. As the value of the time-variable increases, the rest of the system alters according to the law which defines its relation to the time-variable. In other words, it *ages*, according to law. Such a process would be exemplified in the simplest conceivable mechanical system, that of a single body moving in infinite space at a uniform velocity. Mechanics does not assume the possibility of periodicity or recurrence, but only the possibility of the persistence of some abstract relationship among variables.¹

Thus the pragmatist's assertion of the temporality of existence is entirely irrelevant to the question of its determination. A temporal existence may be a bare sequence of disjointed events, or a lawless flux of interpenetrating phases, or it may be an order which obeys a law. Which of these it is, must be judged by other evidence than its mere temporality. We are thus brought back again to the general pluralistic doctrine defined above. Since there are disjunctions in the world, these may occur between successive events as well as elsewhere. In other words, we may construe $a + b$ as prior in time to the c or d which are equally consistent with it. We may then say that at the moment when $a + b$ is completed by the addition of b to a , two futures are possible, in the sense that while m is implied, the implication does not determine whether it shall be m^c or m^d . So far as $a + b$, or any other attendant conditions are concerned, either will serve.

In this sense it is intelligible, and on pluralistic grounds correct, to say that there is a real contingency and novelty in the world. Events occur which not only have not

¹ See above, pp. 56 ff

occurred before, but which are not implied in what has occurred before. "Those parts of the universe already laid down" do not "absolutely appoint and decree what the other parts shall be."¹ (Events occur which cannot be inferred from the past. To predict them, it would be necessary to foresee them. The possibility of such foresight does not contradict their contingency, any more than the bare perception of simultaneous events contradicts their disjunction.)) The essential point is that they are not implied in something else, but can be known only after the fact. An omniscient mind could know them only by knowing *each* of them, or embracing them in an empirical aggregate.

It is to be observed that thus far indeterminism adds nothing to pluralism. It justifies a belief in multiple possibility, and rids the mind of the necessity of judging everything in the world by everything else in the world. It justifies a worship of some things, and an uncompromising enmity to other things; and does not force man to take the world as all one, for better or for worse. ((It justifies a belief that the future holds in store things which cannot be inferred from what has already occurred; and hence the hope that the world may, be better than its promise.)) It justifies an adventurous and hardy optimism, and puts the religion of renunciation and acquiescence among the obsolete superstitions. But despite all this it is none the less true that indeterminism in this general pluralistic sense contributes nothing toward proving human freedom. Such indeterminism attaches to man no more than to any other part of reality. It would be perfectly consistent with it that man should be less free than the planets. It proves that existence makes strange bed-fellows, and that the course of events is surprising) But it does not endow man, the moral agent, with any unique share in this disjunction and novelty; nor with any peculiar power to direct it or profit by it ((There is an element of chance in

¹ James *op cit.*, p 150.

life, but it is as likely to be the mishap of which man is the victim, as the opportunity of which he is the master.

§ 6. But there are other pragmatist arguments for indeterminism which will perhaps yield a more positive freedom. (Thus there is an indeterminism that follows from anti-intellectualism. It consists in the assertion that since determinism is a device of the intellect, it is relative to the interest which moves the intellect, and cannot therefore be imposed on life itself. Instead of being determined, the will is itself the author of the principle of determination; this principle is not its master, but its creature.) Thus, according to Schiller, "determinism is an indispensable Postulate of Science." As such it "has primarily a *moral* significance; it is an encouragement and not a revelation." And "it is quite easy to accept it as a methodological assumption without claiming for it any ontological validity." Whether we accept this postulate or "the ethical Postulate of Freedom" is, in the end, "a matter of free choice," based on their relative serviceability.¹

Such considerations as these support the indeterministic theory, only provided two further assumptions are made. In the first place, it must be assumed that the agency which formulates and employs a certain category cannot itself be subject to that category. This assumption plays, as we have seen, a notable part in idealistic philosophies—in all philosophies which seek to distinguish and separate the subject of knowledge from the manifold of objects. It is argued that known object implies knowing subject, and that to make this subject itself object is to displace and falsify it. The *real* subject is that which in every case of knowledge functions as subject. The application to the question of determinism is obvious. It is argued that things are determined by virtue of being objectified,

¹ *Studies in Humanism*, pp. 395, 396, 397, 394, 406.

² See above, p. 137, and below, pp. 295-296.

and that the objectifying activity itself thus escapes determination.

((But there is no reason ~~why the subject of knowledge should not in turn be object of knowledge~~ or why, indeed, it should not be object of knowledge (in relation to another subject) at the same time that it is subject of knowledge. It is necessary only to suppose that the same term may stand in two or more different relations without forfeiting its identity. (And unless we are to discredit knowledge altogether we must suppose that the real nature of anything is revealed when it is object of knowledge, and in proportion as that knowledge is reflective and critical.) It follows that the subject which objectifies other things, and renders them determinate, may itself be treated likewise, and that only when so treated is its real nature revealed. (The subject is then free from determination only in so far as at any given time it is merely knowing and not known.) Freedom in this sense is only a mode of nescience.

§ 7. The other assumption which is needed to complete the argument, is the assumption that laws are artificial.

Determinism as an Intellectualistic Falsification of Temporal Reality In this application it means that determinism is a fabrication of the intellect, and imposed on a plastic material whose real inwardness it distorts.

((The most notable criticism of determinism on these grounds is that offered by Bergson. It constitutes one of the major applications of his most fundamental and original thesis, to the effect that the intellect spacializes time, and so necessarily falsifies every temporal process by expressing it as a "multiplicity of juxtaposition." Real time (*durée réelle*) is "heterogeneous" and "continuous"; the real temporal process is a multiplicity of "interpenetration." Action, as a real temporal process, is spacialized and falsified by mechanism, by finalism, and even by the majority of indeterminists. By all such "intellectualists," action is represented as a discrete process, with its component elements and successive phases in external juxtapo-

sition to one another. Time is represented as a linear series; and the conditions of action, the moment of choice, and the result of action, are all correlated with the terms of this series. But such a diagram is both discrete and static; whereas the real action *flows*, and *endures*.) The intellectualistic representation necessarily excludes freedom, because it is the representation of a completed action, and not of an action as it goes on. It is impossible in this way to represent alternative possibilities; for the representation either contains both possibilities, and so is contrary to fact, or it contains one of them to the exclusion of the other, which contradicts the supposition of alternatives. And the finalistic scheme is as rigid as the mechanical scheme. For whether we conceive the later terms of the series as the sequel to the earlier, or the earlier as the foreshadowing of the later, in either case all the terms are *there*, in place, simultaneously and exclusively.¹

(Bergson's objection to the intellectualist's version of time rests, as we have seen, upon a mistaken conception of the intellectual or analytical method² The spacial representation of time is intended to be a representation of order, and to be a representation of time in so far, and only in so far, as time is orderly. It is not intended to suggest either that time is nothing but order, or that time is spacial like the representation.) The properties of order are the same, whether in space, number, the color spectrum, the alphabet, or time.) The points on a line furnish a convenient case of order for purposes of demonstration; and their use doubtless reflects the spacializing propensity of the imagination. But if Bergson were a better pragmatist he would not assume, as he appears to do, that representations are mere reproductions of their objects. He would recognize the possibility of meaning non-spacial relations by spacial images. He would not insist, as he

¹ Bergson *Time and Free Will*, pp 121, 128, 129, 172 sq, and Ch. III, *passim*

² See above, pp 231 ff

does, that we know number by "picturing" it; and that we cannot escape the characteristics of the graphic imagination. He would not fall into the loose common sense use of the term 'conceive' as *depict*, and thus perpetually confuse the arrangement of the instrumental image with the arrangement which it enables us to know.¹

Indeed, if it were not possible to employ spacial images for the knowing of non-spacial things, Bergson himself would be even more helpless than those whom he criticizes. For his own favorite expressions are essentially spacial. What images do the words "flux," "continuity," "interpenetration," "deep-seated," "interconnexion," "organization," and "fusion," suggest, if not spacial images? And yet Bergson assumes that these images may so function as to afford knowledge of that which is essentially non-spacial. If a figure of speech can so function, is there any reason why a geometrical figure, or algebraic formula, should not? In short, Bergson arbitrarily imputes to his intellectualist adversary a naïve identification of object and symbol which he disclaims in his own behalf.

(It is not a question, then, of imputing to time the arrangement characteristic of logical or mathematical symbolism, but of imputing to time certain *properties* which may be known by *means* of this symbolism.) Is time an order, or is it not? Is duration an extensive magnitude, or is it not? (Now the orderliness of time is implied in all that Bergson has to say about it, e.g., in its continuity, and in its duality of 'sense' or direction.) While its multiplicity, even though it be characterized as "qualitative" rather than "juxtapositional," is orderly, in that if any phase, *a*, be later or older than another phase, *b*, and *b* than a third phase, *c*, then *a* is later or older than *c*. And as to time's being an extensive magnitude, Bergson's argument would appear to consist in pointing out that temporal *processes* are not *merely* extensive magnitudes; which no one, I think, would be disposed to deny. Velocity, e.g., is an intensive

¹ *Time and Free Will*, p. 78.

magnitude. But this does not in the least prevent its being a ratio of the extensive magnitudes, d (distance) and t (lapse, or interval of time). It may even be admitted that every temporal process or change, every function of time, has intensive magnitude; and this in no way contradicts the conception of time itself as an extensive magnitude. In other words, an intensive magnitude may be a function of extensive magnitudes, and may be computable or predictable in terms thereof.

That such is the case is proved by the predictions which science is actually enabled to make. (Bergson's critique of astronomical prediction turns upon the assertion that the symbol t in the equations of astronomy "does not stand for a duration, but for a relation between two durations, for a certain number of units of time, in short, for a certain number of simultaneities."¹) In other words, the t of science is measured by some standard change, such as the motion of the hands of a clock. So that if a "mischievous genius" were to decree that all the movements of the universe should go twice as fast, the predictions of science would not be affected. Now, granting this, it follows only that science cannot predict absolutely, but only relatively. This, however, does not in the least detract from the precision of the prediction, nor from its reference to the future. Indeed the very statement of the objection assumes that time *is* an extensive magnitude. For if the movements of the universe may go "twice as fast," then it must be possible that the same distances should be covered in half the time. And if time can be halved it must be an extensive magnitude.

Subsequently, Bergson has the temerity to speak of a decree that *time itself* "shall go ten times, a hundred times, a thousand times as fast." Apparently the rate of real time is to be measured by the immediate feeling of the "enduring" or ageing of experience. If so, can Bergson explain, without making use of the conception of

¹ *Op. cit.*, p. 193.

a pure extended time, what is meant by "a psychological duration of a few seconds?"¹ Or how temporal magnitudes are commensurable; how, e.g., two lives with different experiences may be regarded as synchronous? Or how *one day* may be regarded as fuller and richer than another? (The fact is that no quantitative judgments whatsoever can be made concerning temporal processes that do not employ the notion of a simple extended (not spacial) temporal magnitude.) And the predictions of science are made in terms of this component of change. The *t* of the equations of mechanics *means* this component.

As we have seen, Bergson is constantly confusing the symbol with what it means. To one who falls into this confusion, it may appear that an equation cannot refer to time because the structure of the equation itself is not temporal; because the symbols are simultaneously present in the equation. But if *t* is one of the terms of the equation, and *t means* time, then the equation means a temporal process. Furthermore, an equation may define a relation, such as, =, <, or >, between temporal quantities, in which case the full meaning of the equation is still temporal. For changes, events, or even pure intervals, may stand in non-temporal relations, such as those above, without its in the least vitiating their temporality. The supposition that an equation defining a relation can mean no more than the relation defined is disproved by every formula of science. The formula, $c^2 = a^2 + b^2 - 2ab \cdot \cos \gamma$, does not mean merely equality, but a relation of equality among the sides and an angle of a triangle. The formula means something about triangles, by virtue of the meaning of its component variables, and despite the fact that the relation defined is the non-spacial relation of numerical equality. And similarly, a formula in dynamics, such as $v = gt$, means *something about a temporal process.*

There remains one further instance of Bergson's failure to represent with any correctness the position of his deter-

¹ *Op. cit.*, pp. 193, 194.

ministic opponent. It is a question of Paul's ability to predict Peter's choice, provided he knows "*all* the conditions under which Peter acts."¹ Bergson argues that in order to know absolutely all of the conditions under which Peter acts, and to know all about these conditions (including what they lead to), Paul would have to *be* Peter, up to and including the moment of his choice — so that instead of predicting the choice, he would be himself making it.

(But determinism does not rest its case on the possibility of knowing all the conditions of an event. No such knowledge has ever been attained in any instance. Determinism rests its case upon the fact that it has sometimes proved possible to find *just those particular conditions* upon which the event depended.) Prediction always abstracts, not only causes, but effects as well. It finds cases of specific, discriminated terms, antecedent and subsequent, that are connected by a law. Its prediction is based on the specific antecedent, and confined to the specific consequence. (It assumes that whenever such and such conditions occur, whatever else may occur, such and such consequences will ensue, whatever else may ensue. And Bergson has offered no reason for supposing that such is not the case with human action, as well as with other temporal sequence. As a matter of fact, it is the case. Human action *is* predictable within limits; inasmuch as laws, such as those of physiology, pathology, and psychology, have been found and verified. So that Bergson's objection amounts to no more than the contention that human action is not in all respects predictable, which holds equally of every other concrete event.))

Thus the indeterminism that is founded on the polemic against intellectualism, like that founded on pluralism, means only that there is disjunction, irrelevance, and novelty in the world, as well as law. Such indetermination is enjoyed by life and moral action no more than by

¹ *Op. cit.*, pp. 185, and sq.

its natural environment. There is thus far no ground for imputing to man any prerogative of freedom, by which his nature is distinguished and exalted. Indeterminism in such a positive and eulogistic sense depends entirely, then, on the further doctrine that man possesses a unique activity, a real causality of another order, through which he may be the original and spontaneous author of events.

§ 8. (Pragmatism's positive version of freedom follows from the postulate of "dynamism," as opposed to "mechanism." "Dynamism starts from the idea of voluntary activity, given by consciousness," and "has thus no difficulty in conceiving free force.") From this point of view, "the idea of spontaneity is indisputably simpler than that of inertia, since the second can be understood and defined only by means of the first, while the first is self-sufficient." Similarly, Schiller says that the will is "the original and more definite archetype, of which causation is a derivative, vaguer and fainter ectype."¹

Bergson has stated the issue clearly. It is essential to his view that the free creative activity of will should be regarded as a simple and self-sufficient experience. There is, it is true, a suggestion of another view. (We are told that the free act is the act of which the "self alone" is the author; the act which expresses "the whole of the self," as distinguished from "reflex acts."²) But for Bergson the whole of the self is not the sum of its parts; so that it is impossible to construe its action as a more complicated or massive reflex. The "whole personality" is indivisible and unanalyzable; it appears only when conscious states dissolve into a higher unity, and its action can only be felt and not traced.

(And this self-intuiting activity becomes the first princi-

¹ Bergson *op cit.*, pp 140-142, Schiller *Riddles of the Sphinx*, third edition, p. 443 Cf Appendix I, *passim* For James's more critical and limited acceptance of the same view, see below, pp 352-353, 371.

² *Time and Free Will*, pp 165, 166, 168

ple of Bergson's metaphysics. It connects his theory of knowledge with his theory of will. True knowledge is "that faculty of seeing which is immanent in the faculty of acting.") And activity is the universal substance. Strictly speaking, "there are no things, there are only actions." Activity is no longer predicated merely of the organism as distinguished from the environment. As the former is a reality which makes itself, the latter is "a creative action which unmakes itself." If life is a movement, "materiality is the inverse movement.") They are two "undivided" currents, two "simple" movements, that run counter to one another. (And "God thus defined has nothing of the already made, He is unceasing life, action, freedom.") Creation, so conceived, is not a mystery; we experience it in ourselves when we act freely."¹ (Thus the sequel to the postulate of 'dynamism' is a metaphysical 'activism' or creationism; and in so far as pragmatism assumes this form, it allies itself with the voluntaristic and romanticist forms of idealism.))

The sole support of this metaphysics and philosophy of religion is the postulate of dynamism. If it be true that the essential nature of causality is revealed in the experience of activity, then it follows that physical causality is only a projection or inversion of will. Criticism, then, must challenge the postulate. And, first of all, it is to be pointed out that the *origin of the idea of causality* is an irrelevant consideration. The causation exercised by the will may have been the first to attract attention, and it may remain the most familiar instance, but it does not follow that causation was first *understood* in the case of the will, or that the will is the *clearest* instance of it. As the first and most familiar instance, it may be the most primitive and ill-comprehended. It may be the instance to which crude and uncritical modes of thought are, through the operation of habit, most firmly attached. This suggestion

¹ *Creative Evolution*, pp. 250, 247, 248, 249, 248. For the idealistic form of activism, see above, pp. 150-154.

receives support from the fact that the experience of activity is held to reveal the operation of a simple, free, and spontaneous "force," just in proportion as *it is not analyzed*. "The self, infallible when it affirms its immediate experiences, feels itself free and says so; but, as soon as it tries to explain its freedom to itself, it no longer perceives itself except by a kind of refraction through space."¹

This is Bergson's way of acknowledging that the experience, whether for better or for worse, *can* be analyzed. Now it has already been pointed out that there is a very significant difference between the simplicity that precedes, and that which follows, analysis. The first is the simplicity of knowledge that has not yet fully explored and grasped its object; the second is the simplicity of the object. The knowledge of anything whatsoever is simple at the instant of its initiation; it begins at zero, or spreads from a point which is the bare denoting of its object. To attribute this accidental and subjective simplicity to the object is to fall into the error which I have called the error of 'pseudo-simplicity'.² "Dynamism" depends upon this error. It unites the multiplicity of activity as a process, the multiplicity which it reveals upon even the most cursory examination, with that phase of knowledge in which analysis has not yet begun. The as-yet-simple knowledge of a complex thing is converted into a thing which possesses a complex simplicity or simple complexity.

This is not the same as to say that activity is indefinable. It is not *shown to be* simple, in the sense of having been tested and found unanalyzable. It is not an ultimate term. As a matter of fact activity has proved definable, both psychologically and physically. Pragmatists, like James, have gone far toward defining subjective effort,³ and rational dynamics contains exact formulations of 'force' and 'energy' in the physical sense. No, — one

¹ Bergson *Time and Free Will*, p. 183

² See above, pp. 128-132

³ Cf. James "The Experience of Activity," in *A Pluralistic Universe*, Appendix B. Cf. below, pp. 352-353

must not attempt to define it; it is essentially a something-not-yet-defined. In short, it is nescience presented in the rôle of a revelation of reality. To lapse from knowledge into nescience is always possible, — there is no law of God or man forbidding it. But to offer nescience as evidence of the nature of anything, to rank nescience above knowledge for *cognitive* purposes, is to obtain immunity from criticism only by forfeiting the right to a respectful hearing. ((Pragmatism thus offers two versions of indeterminism. On the one hand it is argued on pluralistic grounds that necessity is not all-pervading. There are dislocations in the universe, that make it possible to judge parts of it — such as its good, its evil, and its indifference — independently. It is possible to attack evil in behalf of good, without the sense that one's client is guilty of complicity. (Reality is not a conspiracy, the game is not "fixed," the world in the all-inclusive sense is a contact of strange things, a shock of independent forces; the adventure of life is an honest warfare.))

((On the other hand, it is argued by pragmatists of the radical wing that there is in man an indeterminate, incalculable, and creative power to do.)) But the proof of it requires the abandonment of every tried method of knowledge — both the logical method of "intellectualists," and the observational, experimental method which pragmatists themselves have so successfully practised on every occasion but this. Radicalism of this type is not only unreasonable and unverifiable, but it destroys the originality and distinction of pragmatism and allies it with forces of romanticism, mysticism, and irrationalism.¹

§ 9. In a résumé of pragmatism Papini alludes to its attitude toward religious questions as "*fideism*"² By this is meant its application of the pragmatic theory of truth

¹ There is a positive sequel to pluralistic indeterminism, which does not involve these excesses. Cf. below, pp. 340-342.

² Cf. G. Papini *Il Crepuscolo dei Filosofi*; James "G. Papini and the Pragmatist Movement in Italy," in *Jour. of Phil., Psych., and Scientific Methods*, Vol. III, 1906.

to the case of religious belief. ✓ Here again we shall find it important to distinguish between the more moderate pragmatism, represented by James, and the more radical pragmatism, represented in this case by Papini, LeRoy, and Schiller.

The Pragmatic
Theory of
Truth Applied
to Religious
Faith

James's view is expounded in his essay "The Will to Believe," and in the more recent "Faith and the Right to Believe."¹ He contends that in the case of (religion we are warranted in adopting) that belief which is most in accord with our hopes, and which gives most firmness and courage to the moral will, even though the belief is not decisively proved. James does not advance this view on the general ground that we may believe what we wish, but on the ground of the special circumstances peculiar to religious belief. To state the issue clearly we must recall the pragmatic theory of truth.²

(Ideas or beliefs are essentially instruments of meaning. They are good instruments in so far as they afford access to their objects, and the test of their goodness in this sense is to try them; i e., employ them as means of access.) If they present to the mind what they have led the mind to expect, they are true. (But ordinarily one does not use ideas merely to test them; one assumes their reliability and employs them in the affairs of life. And if they work here, they receive additional verification.) for if they were not good substitutes for parts of the environment, they would not fit in with the rest of the environment. (But ideas acquire still a third variety of value through their immediate agreeableness, or their power to impart vigor to the agent. In other words, they possess a *sentimental* or *emotional* value.) This sentimental value, unlike their operative value, does not confirm their primary value as representations or means of access to things. A highly agreeable or inspiring idea, or a belief that disposes the

¹ Published as an Appendix to *Some Problems of Philosophy*. For further references to James, see below, pp 367-368

² Cf. above, pp. 203 ff.

mind to peace and contentment, may be of all ideas the least fitted to prepare the mind for what is to befall it. In other words, such emotional value is irrelevant to truth-value, in the strict sense. But there are cases in which this emotional value may nevertheless be allowed to weigh and to determine the acceptance of belief. And religion is such a case

For here the idea cannot be decisively tested by the other means. It is impossible to verify or disprove its truth, in the strict sense. The evidence remains indecisive. If one were governed only by 'theoretical' considerations, one would be compelled to suspend judgment. But that is impossible. Some plan of action with reference to the world at large, whether it move one to hope or despair, *must* be adopted. ((There is a "forced option." If one scrupulously refrains from taking the hopeful view, one inevitably falls into renunciation or despair)) But these are no better justified, theoretically, than hope; indeed, they are *less* justified, for there is a balance of probability in favor of religion. It would be folly, then, to allow one's "logical scrupulosity" to drive one to renunciation or despair. Furthermore, if one's religious belief refers to the future, and if the belief moves one to action, the very acceptance of it tends to bring about its truth. Hopefulness may lead to the fulfilment of hope.

((In this view the distinction between the theoretical test of truth, and the emotional justification of belief, is renewed and emphasized at every step. The emotional value is not offered as evidence of truth, but as justifying belief where truth is doubtful. But the second or radical view, on the other hand, *merges* these two tests, the narrower truth-test and the emotional test. Both tests are "practical", both are cases of "working"; both are cases in which the idea is justified by the "satisfaction" it yields. Truth, in the broad sense, is that which "harmonizes" with life all around. No pessimistic system can be true in this sense because it leaves "a sense of final

discord in existence." The final test of religion, then, is its promotion of "that perfect harmony of our whole life which forms our final aspiration."¹))

Now such a view as this has very serious implications, and justifies a certain prejudice against pragmatism as a philosophy of caprice and wanton irrationalism. For if the test of truth is this general harmony with interests, the cognitive interest being only one among the rest, then verification in the narrow sense, and emotional congruity, must be regarded as commensurable. And it follows that in any given case the latter may outweigh the former. It is even conceivable that a religious belief should be so pleasing and inspiring as to be true, despite its being decisively disproved by theoretical means. With James the theoretical test is final and authoritative, in so far as it can be applied, and no amount of subjective satisfactoriness can overbalance it ((The right to believe is limited to the cases in which evidence is lacking or indecisive.) But were the full implications of the radical view to be accepted, there would be a right to believe *despite* evidence.) There would be an end of discussion, and only a clash of desires; in which the desire for theoretical truth could be legitimately shouted down by the clamor of the rest.

§ 10. Pragmatism, both of the more moderate type, represented by James, and in the main by his American allies and followers, or the more radical type, represented by Bergson, Schiller, Papini, and LeRoy, is peculiarly significant of the present age. Negatively, it is significant of the reaction against absolutism, long enthroned in academic and other orthodox circles. It signifies that the spell which absolutism has long wrought upon the minds of inquiring and youthful thinkers has lost its power. More positively, pragmatism marks the maturing and the express formulation of certain ideas that have long inspired European thought.

¹ Schiller *Humanism*, pp 50, 61, cf. pp. 39 sq., 189. Cf. also above, pp. 209, 213

In the first place, pragmatism employs for philosophical purposes what may be termed the 'biological' imagination, as distinguished from the logical, the physical, and the introspectively psychological. Pragmatism views knowledge and religion as modes of life; and life it conceives not in any vague eulogistic sense, but in the naturalistic sense, as an affair of forced adaptation to an indifferent and, at best, reluctantly plastic environment. Knowledge and religion arise from the exigencies of life, and the exigencies of life are real, perilous, and doubtful

((In the second place, pragmatism emphasizes the crucial importance of human efforts. It teaches that the spiritual life is in the making at the point of contact between man and the balance of nature — between the ideals of man, and the resistances, cruelties, and seductions with which they are forced to cope.)) The hope of better things lies in the continued operation of the forces that are even now yielding good things. *Civilization*, not the totality of nature, nor any higher synthetic harmony, is the work of God. This is the Baconian prophecy renewed. Through the knowledge that is power, and guided by his desire and hope of better things, man may conquer nature and subdue the insurrection of evil.

((Thirdly, since man's efficiency lies in his collective and not in his individual action, pragmatism emphasizes society. It is non-pantheistic and non-mystical.)) It attaches less significance to the direct relation between man and a dynastic God, and more to that relation to his fellows which may make a man a servant of the collective life, and so lead him to a new conception of God as leader of common cause.))

((And finally, pragmatism is melioristic. It speaks for the spirit of *making better*, and denounces alike the spirit of renunciation and the spirit of despair.)) It is the philosophy of impetuous youth, of protestantism, of democracy, of secular progress — that blend of naïveté, vigor, and adventurous courage which proposes to possess the future, despite the present and the past.

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